THE RUBBER AGE

Brazilian Natives Carrying Rubber

July 25th
1917

Ten Cents
a Copy

PUBLISHED SEMI-MONTHLY
BY
THE GARDNER, MOFFAT CO., Inc.
120 W. 32nd St. NEW YORK

RECLAIMED RUBBER

BUFFALO BRANDS

STRONGEST CLEANEST

U.S. RUBBER RECLAIMING CO. Inc.

42 ND ST. BUILDING, NEW YORK

EUROPEAN AGENTS: ARTHUR MEYER & CO., LTD., 29 MINCING LANE, LONDON, E. C.

United States Rubber Company

1790 Broadway

New York

The Largest Rubber Manufacturers in the World

Indexed Buyers' Guide to Rubber Products

Below will be found a list of Rubber Products and the index to the Rubber Companies who manufacture each item, compiled from information furnished by the manufacturers. The key symbols after the names of the articles refer to the names of manufacturers that appear in the Alphabetical List of Rubber Manufacturers that follows this BUYERS' GUIDE. Further information for Buyers will be gladly furnished by The Rubber Age

Mechanical Rubber Goods

Anti-Rattlers, B42, B72, C54, C64, E32, F20, F22, G50, I12, M42, N28, U4, U10, C6, D38, G22.

Arch Supporters, F22, L30, C6, G22.

Bags, Gas, D6, F36, I12, M42, M52, M66, P20, Q4, U10, C6, D38, G22.

Bags, Gas Main, D6, M52, M66, P20, Q4, U10, C6, G22.

Bags, Hat, B42, C64, E26, M50, N28, P20, R20, U4, U10, C6, G22.

Balata, Specialties, B42, D22, R18, S68, U10, C6.

Balls, Closet, M50, M52, S50, S68, U10, C6, W26, G22, C18.

Balls, Faucet, U10, C18.

Balls, Fuller, B26, C40, C54, E22, E26, I12, M42, M50, M52, P20, R18, S50, S68, T6, U10, V22, C6, D38, W26, G22, C18.

Balls, Gas Main, D6, M52, U10, C6, G22.

Balls, Tank, C40, M50, M52, S68, U10, C6, G22, C18.

Balls, Trap, B42, M52, U10, C6, G22.

Balls, Valve, B42, C40, I12, M50, M52, R18, S68, U10, C6, D38, W10, G22, C18.

Bands, Carpet Sweeper, B42, B72, C32, C40, C64, D26, E26, E32, G50, M42, N28, P20, Q4, R18, S50, T6, U10, C6, D38, W10, G22, C18.

Bands, Hose, U10.

Bands, Umbrella, D6, S50, U10, C6, D38, G22.

Belting, Balata, B42, B72, D22, M24, R18, S68, U4, U10, V6, C6.

Belting, Band Saw Bands, B42, B72, C40, C54, E26, G50, M50, N28, P20, Q4, R18, R20, U4, U10, V12, C6, D38, W10, G22.

Belting, Canvas, B50, D22, M24, M50, N52, R20, S68, U4, U10, V6, C6, D38.

Belting Conveyor, B42, B50, B72, C40, C54, D22, E26, G30, G50, H8, M24, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V6, V12, V42, C6, D38, G22, C18.

Belting, Elevator, B42, B50, B72, C40, C54, D22, E26, G30, G50, H8, M24, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V6, V12, W42, C6, D38, G22.

Belting, Endless, B42, B50, C40, C54, D22, E26, G30, G50, M24, M50, M52, N28, T20, Q4, R18, R20, S68, U4, U10, V6, V12, W42, C6, D38, G22.

Belting, Flange Conveyor, B42, N28, R18, R20, S68, U4, U10, W42, C6, D38, G22.

Belting, Friction Surface, B42, B50, C40, C54, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.

Belting, Gold Dredger, B42, B50, E26, G30, H8, P20, Q4, R18, R20, U4, U10, V6, V12, C6, D38, G22.

Belting, Grader, B42, B50, B72, C40, D22, E26, G30, G50, H8, M50, M52, N28, Q4, R18, R20, T6, U4, U10, V6, V12, C6, D38, G22.

Belting, Grain Elevator, B42, B50, B72, C40, C54, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, U4, U10, V6, V12, W42, C6, D38, G22.

Belting, Laggings, B72, C54, E26, G30, G50, M52, Q4, R18, R20, U4, U10, C6, D38, G22.

Belting, Oil Well, B42, B50, B72, C40, C54, D22, E26, G30, G50, H8, M52, N28, P20, Q4, R18, R20, T6, U4, U10, V6, V12, C6, D38, G22.

Belting, Polishing, B42, C40, C54, E26, G30, G50, M50, M52, Q4, R18, R20, S68, U4, U10, C6, D38, G22.

Belting, Pulley Covering, B42, B50, B72, C54, E26, G30, G50, M50, M52, Q4, R18, R20, T6, U4, U10, V12, C6, D38, G22.

Belting, Splicing, B42, C40, D22, E26, G30, G50, R18, R20, U4, U10, C6, G22.

Belting, Stitched, B42, B50, C40, C54, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.

Belting, Transmission, A24, B42, B50, B72, C40, C54, D22, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V6, V12, W42, C6, D38, G22.

Belting, Vanner, B42, N28, R18, R20, U4, U10, V6, C6, D38, G22.

Belts, B42, B50, B72, C40, C54, D22, E26, G10, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V6, V12, W42, C6, D38, G22.

Belts, Polishing, B42, C40, C54, E26, G10, G50, M50, M52, Q4, R20, S68, U4, U10, C6, D38, G22.

Bindings, Rubber Carpet, U10.

Blades, Squilgee, C18.

Blankets, B42, B50, B72, G50, M52, R20, S68, U10, C6, D38, G22.

Blankets, Printers', B42, G50, K12, M52, R20, S68, U10, C6, D38, G22.

Blocks, B42, B72, C40, C54, C64, F22, G50, H8, M50, M52, R18, R20, S50, U4, U10, C6, D38, W26, G22.

Blocks, Hat, U10.

Bolsters, A58, B42, C54, G50, R18, R20, U10, C6, D38, G22.

Brewers' and Bottlers' Supplies, B72, C40, C54, C64, E22, E26, F20, G50, M50, M52, N6, R18, R20, S50, S68, T6, U4, U10, W42, C6, D38, W10, G22, C18.

Brushes, Rubber, M42, S50, U10, C6, G22, C18.

Buckets, Pump, B72, C64, M50, M52, R18, S50, U10, C6, G22, C18.

Bulbs, Horn, U10.

Buffers, C40, C54, C64, E22, E26, G30, G50, N6, R18, S50, S68, U4, U10, C6, D38, G22.

Bumpers, A88, B42, B72, C32, C40, C54, C64, E22, E26, E32, F20, F22, G30, G50, H8, I12, M42, M50, M52, M66, N28, Q2, Q4, R18, R20, S50, S68, T6, U4, U10, V12, V22, C6, D38, P52, W26, W10, G22, C18.

Bumpers, Bar, C54, C64, F20, G50, H8, I12, M42, M50, M52, T6, U4, U10, C6, D38, G22, C18.

Bumpers, Car Seat, C54, C64, F20, G30, G50, H8, I12, M50, M52, N28, Q4, R20, S50, S68, T6, U4, U10, V12, C6, D38, W26, G22, C18.

Bumpers, Door, B72, C40, C54, C64, F20, F22, G30, G50, H8, M42, M50, M52, Q4, R18, S50, S68, U4, U10, C6, D38, W26, G22, C18.

Bumpers, Furniture, C40, C64, F20, M50, M52, N28, Q4, R18, R50, U4, U10, C6, D38, G22, C18.

Bumpers, Screw, C64, F20, I12, M50, M52, P4, U4, U10, C6, D38, G22, C18.

Bumpers, Tank, C40, F20, M50, M52, Q4, U4, U10, C6, D38, G22, C18.

Bumpers, Wagon, A58, B42, C40, C54, C64, D36, E32, F20, F22, G50, M50, M52, N28, Q6, R18, S50, T6, U4, U10, V12, C6, D38, G22.

Bushings, A76, B72, C40, C64, E22, E26, F20, H8, M42, M50, M52, R18, S50, S68, T6, U4, U10, V12, C6, G22, C18.

Bushings, Flanged, B72, C40, F20, H8, M42, M50, M52, S50, U4, U10, V12, C6, G22.

Cement Rubber, H20, V4.

Cloths, Card, B66, U10, C6, G22.

Collets, M52, U10, C6, G22, C18.

Connections, Hose, B50, C40, C54, C64, E26, E32, F20, G30, M50, M52, T6, U4, U10, C6, D38, M82, W10, G22, C18.

Cord, Rubber, B42, B50, B72, C40, C54, C64, D6, E26, F20, G30, G50, H8, M50, M52, N28, R18, R20, S50, U4, U10, V12, C6, D38, W26, G22.

Cores, Hose, U10.

Couplings, Hose, U10.

Coverings, Gin Roll, U10.

Cups, Force, C54, C64, D36, E22, E26, E32, F20, F36, G50, M42, M52, Q4, S50, S68, U10, V22, C6, D38, W26, G22, C18.

Cushions, Billiard, B42, B50, B68, C54, G30, R20, S50, U4, U10, C6, D38, G22.

Cushions, Bradley Hammer, U10.

Cushions, Heel, F32, L30, G22.

Cushions, Ring, B42, C40, D2, D6, S50, U4, U10, C6, G22.

Decarbonizers, S37.

Diaphragms, B42, B72, M52, U10, C6, G22, C18.

Discs, Bibb, B24, C40, C54, E22, M42, M50, M52, P20, S50, S68, U10, V22, C6, G22, C18.

Discs, Bottlers', B72, C40, E26, F20, G50, H8, M52, S50, S68, U10, C6, G22, C18.

Discs, Valve, B24, B42, C40, C54, E22, E26, F20, F22, G30, G50, M50, M52, P20, Q4, R18, S50, S68, U4, U10, V12, C6, D38, W10, G22, C18.

Dolls, Rubber, D6, F14, M52, U101, C6.

Dressing, Belt, U10.

Elbows, E26, M50, M52, S50, S68, U10, V22, C6, G22, C18.

Experimental Work, B72, C40, C54, E22, E26, E32, G50, M42, M50, N6, R42, S50, T6, U10, V12, C6, D38, W10.

Eyes, Bleachery, B42, U10.

Faucet Attachments, M42, M52, C6, G22, C18.

Feet, Typewriter, C40, C64, E32, G50, H8, I12, M42, M52, R18, R50, S50, U10, V12, V22, C6, D38, W26, G22, C18.

Filling, Pulley or Sheave, C54, H8, M50, M52, N28, Q4, R18, T6, U10, C6, D38, G22.

Fire Appliances, A24, B50, G50, U4, U10, C6, D38, G22.

Fittings, Hydraulic, C40, T6, U10, C6, M82, G22.

Flange, Closet Floor, C54, E32, G50, M50, M52, Q4, T6, U10, C6, D38, G22, C18.

Furnace Sets, D6, F32, M50, M52, Q4, S50, U10, C6.

Gaskets, Air Hose, B42, C40, C54, E22, F20, G30, G50, H8, M50, M52, P20, Q4, R18, R20, S50, S68, T6, U4, U10, C6, D38, P52, W26, W10, G22, C18.

Gaskets, Basin, B42, C54, E22, F20, G50, I12, M50, M52, Q2, Q4, S68, T6, U4, U10, C6, D38, G22, C18.

Gaskets, Screen, U10.

Gaskets, Sink, B42, C54, E22, F20, G50, I12, M42, M50, M52, Q4, S68, T6, U4, U10, C6, D38, G22, C18.

Gum, Dental, D6, G50, H60, M42, T14, T16, U10, C6, G22.

Gum, Hat, U6.

Gum, Stamp, B42, C64, F20, G50, H60, M42, M50, M66, S50, T14, U4, U10, C6, D38, G22.

Heels, A88, B42, B50, C32, C42, D36, E26, E32, F20, F22, F32, G10, G16, G30, G50, D80, M52, M66, N28, Q2, R20, T2, T16, U4, U10, C6, D38, P52, W26, W10, G22.

Hose Accessories, B50, C40, C64, E26, G50, M50, N28, R20, T6, U10, C6, D38, M82, G22.

Hose, Acid Tubing, B42, B50, C40, C54, C64, D6, E20, E26, G30, G50, H8, M50, M52, M66, N28, P20, Q4, R18, R20, S50, S68, T6, U4, U10, V12, W42, C6, D38, W10, G22.

Hose, Agricultural, B42, B50, C40, C54, C64, E20, E26, G30, G50, M50, M52, N28, Q4, R18, R20, S68, T6, U4, U10, W42, C6, D38, G22.

Hose, Air, U10.

Hose, Air, Woven Steel Armored, W42.

Hose, Air Brake, B42, B50, C54, E20, G30, G50, H8, J10, M50, M52, N28, P20, Q4, R18, R20, S68, U4, U10, W42, C6, D38, G22.

Hose, Air Drill, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, M82, G22.

Hose, Aeroduct Vacuum, B42, B50, C40, E20, E26, G50, H8, M50, P20, Q4, R20, S68, T6, U4, U10, C6, G22.

Hose, Armored, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, J10, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, M82, G22.

Hose, Ash Pit, B42, B50, C40, C54, E20, E26, G50, H8, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, M82, G22.

Hose, Automobile Radiator, B42, B50, C32, C40, C54, C64, E20, E26, E32, F20, G30, G50, H8, I12, M42, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.

Hose, Beer Tubing, B42, B50, C40, C54, C64, D6, E20, E26, G30, G50, H8, M50, M52, M66, N28, P20, Q4, R18, R20, S68, T6, T16, U4, U10, V12, W42, C6, D38, G22, C18.

Hose, Boiler Test, B42, B50, C40, C54, C64, E20, E26, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.

Hose, Boiler Washout, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, M82, G22.

Hose, Braided Chemical, B42, B50, E20, E26, H8, M50, M52, N28, P20, Q4, R18, R20, S68, U4, U10, W42, C6, D38, G22.

Hose, Braided Pneumatic, B42, B50, C40, E20, E26, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, W42, C6, D38, G22.

Hose, Brewers', B42, B50, C40, C54, C64, D6, E20, E26, G30, G50, H8, M50, M52, M66, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.

Hose, Cement Gun, B42, B50, C64, E20, G50, M50, N28, P20, R20, S68, U4, U10, V12, C6, D38, G22.

Hose, Chemical Engine, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.

Hose, Cloth Inserted Tubing, B42, B50, C40, C54, C64, D40, E20, E26, E32, F22, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.

Hose, Coal Sprinkler, B42, B50, C40, C54, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, T6, U4, U10, V12, W42, C6, D38, M82, G22.

Hose, Coal Sprinkler, Woven Steel Armored, W42.

Hose, Coke, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, T6, U4, U10, V12, W42, C6, D38, M82, G22.

Indexed Buyers' Guide to Rubber Products—Continued

Mechanical Rubber Goods—*Continued*

Hose, Compressed Air, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, M82, G22.

Hose, Conducting, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, M82, G22.

Hose Connections, A24, B42, B50, B52, C40, C64, E26, G50, M50, N28, Q4, R18, R20, S68, T6, U4, U10, C6, D38, M82, G22.

Hose, Cotton, B50, C54, E26, G50, H8, M50, N28, Q4, R18, R20, S68, U4, U10, V12, W42, C6, D38, G22.

Hose Coverings, B42, B50, C40, E20, E26, G50, M50, N28, Q4, R18, R20, S68, U4, U10, V12, C6, D38, M82, G22.

Hose, Deck, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, T6, U4, U10, V12, W42, C6, D38, G22.

Hose, Discharge Agricultural, M52, U10.

Hose, Divers', B42, B50, C54, C64, E20, E26, G30, G50, H8, M50, N28, P20, R18, R20, S68, T6, U4, U10, V12, C6, D38, G22.

Hose, Dredging Sleeves, B42, B50, C40, C54, C64, E26, G30, G50, H8, M50, N28, P20, Q4, R18, R20, T6, U4, U10, V12, C6, D38, G22.

Hose, Dynamo Steam, B42, B50, C40, C54, E20, E26, H8, M50, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, C6, D38, G22.

Hose, Factory Fire, B42, B50, C40, C54, E26, G30, G50, H8, M50, N28, Q4, R18, R20, S68, U4, U10, V12, W42, C6, D38, G22.

Hose, Fire, B42, B50, C40, C54, E20, E26, G30, G50, H8, N28, Q4, R18, R20, S68, U4, U10, V12, W42, C6, D38, G22.

Hose, Fire, Cotton, Rubber Lined, B42, B50, C40, C54, E26, G30, G50, H8, N28, Q4, R18, R20, U4, U10, V12, W42, C6, D38, G22.

Hose, Fire Engine Suction, B42, B50, C40, C54, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, C6, D38, G22.

Hose, Fire Extinguisher Tubing, B42, B50, C40, C54, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.

Hose Fittings, A24, B42, B50, C40, E26, G50, H8, N28, R20, U10, V12, C6, D38, M82, G22.

Hose, Flue Cleaning, B42, B50, C40, C64, E20, E26, G30, G50, H8, M50, N28, P20, Q4, R18, R20, S68, T6, U4, U10, C6, D38, M82, G22.

Hose, Garden, B42, B50, C40, C54, C64, D40, E20, E26, G30, G50, H8, J10, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.

Hose, Gas, B42, B50, C40, C54, C64, E20, E26, F22, G30, G50, H8, M50, M52, P20, Q4, R18, R20, T6, U4, U10, W42, C6, D38, M82, G22.

Hose, Gasoline, B42, B50, C40, C54, C64, D40, E20, E26, G20, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.

Hose, Gas Tubing, B42, B50, C40, C54, C64, E20, E26, F20, G30, G50, H8, M50, M52, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22, C18.

Hose, Hard Rubber Suction, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, C6, D38, G22.

Hose, Hot Water, B42, B50, C40, C54, C64, D40, E20, E26, G30, G50, H8, J10, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, M82, G22.

Hose, Hydraulic, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, J10, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.

Hose, Lathe Turret, M52.

Hose, Lawn, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.

Hose, Linen, B50.

Hose, Mill and Factory, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, N28, C6, D38, G22.

Hose, Molded, B42, B50, C40, C54, E20, E26, G30, G50, H8, J10, M50, N28, P20, Q4, R18, R20, U4, U10, W42, C6, D38, G22.

Hose, Oil, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68 T6, U4, U10, V12, W42, C6, D38, M82, G22.

Hose, Oil Suction, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.

Hose, Paint, B42, B50, C40, C54, C64, E20, E26, G50, H8, M50, P20, R18, R20, T6, U4, U10, V12, C6, M82, G22.

Hose, Phosphate Suction, B42, B50, C40, C54, E20, E26, G50, H8, M50, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, C6, D38, G22.

Hose, Pneumatic, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, M82, G22.

Hose, Radiator Steam, U10.

Hose, Rubber, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, J10, M50, M52, M66, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, V42, C6, D38 M82, G22.

Hose, Sand Blast, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42 C6, D38, G22.

Hose, Sand Suction, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.

Hose, Smooth Bore Suction, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42 C6, D38, G22.

Hose, Soda, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, C6, D38, G22.

Hose, Spray, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, C6, D38, M82, G22.

Hose, Steam, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, J10, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42 C6, D38, M82, G22.

Hose, Steam Drill, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, M82, G22.

Hose, Steam Woven Steel Armored, W42.

Hose, Street Washing, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.

Hose, Submarine, B42, B50, C40, E20, E26, G50, H8, M50, N28, P20, Q4, R18, R20, S68, U4, U10, C6, G22.

Hose Suction, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.

Hose, Tanner, B42, B30, C40, C54, E20, E26, G50, H8, M50, P20, Q4, R18, R20, S68, T6, U4, U10, V12, C6, D38, G22.

Hose, Tender or Tank, B42, B50, C40, C54, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, U12, V12, W42, C6, D38, M82 G22.

Hose, Turbine Cleaner, B42, B50, C40, C54, E20, E26, G50, H8, M50, P20, Q4, R18, R20, S68, T6, U4, U10, W42, C6, D38, G22.

Hose, Underwriters, B42, B50, C40, E20, E26, G30, G50, N28, Q4, R18, R20, S68, U4, U10, W42, C6, D38, G22.

Hose, Vacuum, B42, B50, C40, E20, E26, G30,, G50, H8, M50, M52, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.

Hose, Vinegar, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, P20, Q4, R18, R20, S68, T6, U4, U10, V12, C6, D38, G22.

Hose, Voice Tubing, B42, B50, C54, E20, E26, G50, H8, M52, Q4, R18, R20, S68, U4, U10, V12, C6, D38, M82, G22.

Hose, Water, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, J10, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, M82, G22.

Hose, Water, Woven Steel Armored, W42.

Hose, Wine, B42, B50, C40, C54, C64, E20, E26, G50, H8, M50, M52, M66, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, C6, D38, G22.

Hose, Wire Bound, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, M82, G22.

Keys, Typewriter, U10, C6.

Lagging, B72, C54, C64, G50, R18, T6, U4, U10, C6, G22.

Linings, Brake, E26, E32, G30, H8, J10, Q4, T6, U4, U10, C6, G22.

Linings, Hose, U10.

Mallets, B42, C54, C64, D6, E22, F20, G50, H8, M42, M50, M52, P20, Q4, R18, R20, S50, T6, U4, U10, V12, C6, P52, G22.

Matting, Corrugated, B42, B50, B68, C40, C54, E26, E32, F20, F36, G30, G50, H8, M50, M52, N28, P20, Q2, Q4, R18, R20, S68, U4, U10, V12, W42 C6, D38, S54, G22.

Matting, Bath Tub, B42, B50, C54, E26, F20, G50, H8, M50, M52, N28, P20, Q4, S68, T6, U4, U10, C6, D38, G22.

Matting, Cuspidor, B42, B50, C40, C54, E26, E32, F20, G50, M50, M52, N28, P20, Q2, Q4, R18, S68, U4, U10, V12, V22, W42, C6 D38, G22.

Matting, Door, B42, B50, C40, C54, E26, E32, F20, F36, G50, H8, M50, M52, N28, P20, Q2, Q4, R18, R20, S68, U4, U10, V12, W42, C6, D38, G22.

Matting, Elevator, B42, B50, C40, C54, E26, F20, F36, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.

Matting, Floor, B42, B50, C40, C54, E26, F20, F36, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, U4, U10, V12, W42, C6, D38, G22.

Matting, Knob, B42, B50, C40, C54, F20, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, U4, U10, W42, C6, D38, G22.

Matting, Perforated, B42, B50, C40, C54, E26, E32, F20, F36, G30, G50, H8, M50, M52, N28, B20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6 G22.

Matting, Pneumatic, B42, E32, H8, P20, R18, U4, U10, C6, G22.

Matting, Pyramid, B42, B50, C54, E26, F20, H8, M50, M52, N28, P20, Q2, Q4, R18, R20, S68, U4, U10, C6, D38, G22.

Matting, Stair, B42, B50, C40, C54, E26, F20, G30, G50, H8, M50, M52, N28, P20, Q2, Q4, R18, R20, S68, U4, U10, V12, C6, D38, G22.

Mechanical Rubber Goods, B42, B50, B72, C14, C40, C54, C64, E22, E26, E32, F20, G30, G50, H8, I12, M50, M52, M66, N6, N28, P20, Q4, R18, R20, R42, S50, S68, T6, U4, U10, V12, V22, W42, C6, D38, W26, G22, C18.

Molded Goods in Customers' Molds, B24, R50, C18.

Molded Mechanical Goods, B72, T16, U10, C18.

Nozzles, A24, B50, C40, R20, S50, S68, T6, U10, C6, D38, G22.

Nuts, Lock, U10, C6.

Oil Well Supplies, U10.

Packers, B72, C40, C54, C64, E22, E26, H8, M50, N28, P20, R18, S50, S68, U4, U10, V12, C6, W10, G22, C18.

Packing, B26, B42, B50, B72, C14, C32, C40, C54, C64, E22, E26, E32, G30, G38, G50, H8, M50, M52, N88, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, P52, W10, G22, C18.

Packing, Boiler Gaskets, B26, B42, B72, C14, C40, C54, C64, E22, E32, G30, G38, G50, J10, M50, M52, N28, T20, Q4, R20, S50, S68, U4, U10, V12, C6, D38, W10, G22.

Packing, Coil, B26, B42, C14, C40, C54, E22, E26, G38, G50, H8, J10, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, W10, G22.

Packing, Gaskets, B26, B42, B72, C14, C40, C54, E22, G30, G38, G50, J10, M50, M52, N28, P20, Q4, R18, R20, S68, U4, U10, V12, W42, C6, D38, W10, G22, C18.

Packing, Oil Well, B26, B42, B72, C14, C40, C54, C64, E22, E26, G30, G38, G50, H8, J10, M50, M52, N28, P20, Q4, R18, R20, S50, S68, T6, U4, U10, V12, C6, D38, W10, G22.

Packing, Radiator Discs, B42, C14, C40, C54, E22, E32, G50, M52, P20, Q4, R20, S50, S68, T6, U4, U10, C6, G22.

Packing, Ring, B26, B42, C14, C40, C54, E22, E26, G38, G50, H8, J10, M50, M52, P20, Q4, R20, S68, T6, U4, U10, W42, C6, D38, G22.

Packing Sets, B26, B42, C14, C40, E22, G38, G50, H8, J10, M52, P20, Q4, R20, S68, U4, U10, W42, C6, G22.

Packing, Sheet, B26, B42, B50, B72, C14, C40, C54, C64, E22, E26, E32, G38, G50, H8, J10, M50, M52, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.

Packing, Spiral, B26, B42, C14, C40, C54, E26, G30, G38, G50, H8, J10, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.

Pads, Horseshoe, C32, C64, E32, F20, M50, M52, N28, R18, R20, U10, C6, D38, P52, W10, G22, C18.

Pads, Landing, U10, C18.

Pails, U10.

Pipes, Hose, U10.

Pipes, Play, B50, G50, H8, N28, P20, R20, U10, C6, D38, G22.

Platens, Typewriter, B42, G50, N28, R18, S50, U10, V12, C6, G22.

Plugs, Tapered, C54, E22, G50, M52, R18, U10, V12, C6, G22, C18.

Plumbers' Specialties, C40, E22, G50, I12, M50, M52, Q4, S50, S68, U10, V22, C6, D38, W26, W10, G22, C18.

Pulleys, Rubber Faced, R42.

Racks and Reels, Hose, U10.

Railroad Supplies, A88, B42, C40, C54, E26, E32, G30, G50, H8, M50, N28, P20, R18, R20, S68, U4, U10, V6, C6, D38, W26, W10, G22.

Rings, A58, B42, B72, C40, C54, C64, E22, E26, F20, G30, G50, I12, M42, M50, M52, N28, R18, R20, S68, T6, U4, U10, V12, D38, P52, W26, G22, C18.

Rings, Asbestos, U10.

Rings, Beer Keg Washer, B42, B72, C40, C54, C64, E22, E26, F20, G50, H8, M50, M52, N28, R18, R20, S50, S68, T6, U4, U10, C6, C18.

Rings, Brewers, U10.

Indexed Buyers' Guide to Rubber Products — Continued

Mechanical Rubber Goods—*Continued*

Rings, Cloth Inserted, B42, C40, C54, E22, F20, G50, H8, M50, M52, N28, P20, R18, R20, S68, U4, U10, V12, C6, D38, G22.
Rings, Combination Hydraulic, U10.
Rings, Coupling Packing, U10.
Rings, Cream Separator, B42, C40, C54, E26, F20, G50, H8, I12, M50, M52, N28, P20, R18, R20, S50, S68, T6, U4, U10, V12, C6, D38, G22.
Rings, Duster, S50, S68, U4, U10, V12, C6, G22.
Rings, Fruit Jar, B50, C80, E26, G50, H8, M50, M52, P28, R18, S68, U4, U10, C6, D38, G22, C18.
Rings, Gage Glass, U10, C18.
Rings, Half Round, U10, C6, G22, C18.
Rings, Hydraulic Press, A38, B42, C32, C40, C54, F20, G50, H8, M50, M52, S68, T6, U4, U10, V12, C6, W26, G22.
Rings, Pipe Coupling, B42, C40, C64, G50, H8, I12, M50, M52, N28, R18, S68, U4, U10, C6, G22, C18.
Rings, Plunger, B42, C40, G38, H8, I13, J10, M50, M52, Q4, R20, S50, S68, T6, U4, U10, C6, G22, C18.
Rings, Rainbow, U10.
Rings, Round Flange, B42, C40, C54, E22, F20, G50, H8, J10, M50, M52, Q4, R18, R20, S68, T6, U4, U10, C6, D38, G22, C18.
Rings, Square Flange, B42, B72, C40, E22, F20, G50, H8, J10, M50, M52, Q4, R18, R20, S68, T6, U4, U10, V12, C6, D38, G22, C18.
Rings, Testing, C40, E22, G50, H8, M50, M52, N28, S50, T6, U4, U10, C6, G22, C18.
Rings, Umbrella, D6, F2, M52, S68, U4, U10, C6, D38, G22, C18.
Rollers, Paper Machine, A38, B42, C40, C54, E22, E26, F20, M52, R20, R42, U4, U10, C6, G22.
Rolls, A38, B42, B72, C40, C54, C64, E22, E26, F20, G50, H8, M50, M52, N28, Q4, R20, R42, S50, T6, U4, U10, C6, D38, W10, G22.
Rolls, Covered, A38, B42, B72, C32, C40, C54, C64, E22, E26, E32, F20, G16, G50, H8, M42, M50, M52, N6, N28, Q4, R18, R20, R42, S50, T6, U4, U10, V12, C6, D38, W10, G22.
Rolls, Wringer, A38, B42, C40, C64, E22, F20, G30, G50, M50, M52, Q4, R18, R42, U4, U10, C6, D38, W10, G22.
Rubber, Beet Sugar, C54, E22, H8, M50, M52, R18, R20, S50, U4, U10, C6, W10, G22.
Rubber Casing Head, B42, B72, C54, C64, H8, M50, M52, R18, R20, U4, U10, C6, G22.
Rubber, Channel Sash, B50, B72, C40, C54, C64, B6, F20, H8, M42, M50, M52, N28, Q4, R18, R20, T6, U4, U10, C6, G22.
Rubber, Glazing, B60, C64, B72, F20, H8, M42, M50, M52, Q4, R18, U4, U10, C6.
Rubber Stock, Unvulcanized, U10.
Rubbers, Beer Pump, U10, C18.
Rubbers, Massage, C40, F14, M42, M52, S50, U10, C6, D38, G22.
Rubbers, Shoe Machinery, U4, U10, C6.
Rubbers, Swab, B72, C64, H8, P20, Q4, R18, R20, T6, U4, U10, V12, C6, W10, G22.
Rubbers, Whip Socket, H8, M52, U4, U10, C6, G22, C18.
Seats, Post, I12, M50, R18, U4, U10, C6, G22, C18.
Shoes, Horse, U10.
Sleeves, Dredging, B42, B50, C40, C54, C64, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, C6, D38, G22.
Soles, A38, B42, B50, C32, C42, E26, E32, F20, F22, G16, G30, G50, L30, M52, M65, M66, Q2, R18, R20, T2, U4, U10, C6, D38, G22.
Soling, A38, B42, B50, B72, C32, C42, C54, E26, E32, F20, G50, M65, M66, N28, R18, R20, U4, U10, C6, D38, G22.
Solutions, Rubber, R34.
Splicing Compound, B22, B42, B50, C54, H8, M52, N28, M42, S68, U4, U10, C6, D38, G22.
Springs, B42, B72, C40, C54, E22, E26, F20, G50, H8, M50, N28, R18, S50, S68, T6, U4, U10, C6, D38, W26, G22.
Springs, Cylinder Hub, U10.
Springs, Die Stamping, U10.
Springs, Door, B42, C40, C54, C64, F20, H8, M50, R18, S50, S68, U4, U10, C6, W26, G22.
Sprinklers, Lawn, U10.
Sponge Rubber, B42, F14, H8, M42, M66, R20, S50, S68, T14, U10, C6, G22.
Stamp, Rubber, B42, C40, C64, F20, G50, M42, M50, M66, P20, R18, S50, T14, U10, C6, D38, G22.
Steps, Rubber Covered, U10.
Stoppples, C54, C64, D6, F14, F36, H8, M50, M52, R50, S50, U10, C6, G22, C18.
Stoppples, Chemical, U10.
Stoppers, Basin and Bath, E22, F36, H8, M42, M50, M52, Q2, Q4, U4, U10, V22, C6, W26, G22, C18.
Stoppers, Beer, M52, U4, U10, C6, G22.
Stoppers, Suction, E22, M50, M52, U4, U10, C6, W26, G22, C18.
Straps, Deckle, B42, R20, S68, U4, U10, C6, D38, G22.
Straps, Loom, Balata, M24.
Stripping, Weather, B42, C40, F20, M50, M52, Q4, R18, U4, U10, C6, D38, G22.
Strips, Casket, U10.
Strips, Sash, B42, B72, C40, F20, M50, R18, U4, U10, C6, G22.
Submarine Diving Apparatus, B42, U10, C6, G22.
Sugar Factories Specialties, B42, B72, C40, C54, E22, G50, H8, M52, P20, R18, S50, S68, U10, C6, M82, W10, G22.
Tanks, Acid, Rubber Lined, R42.
Tape, Friction, B22, B50, C40, E22, F22, M52, M66, M42, R20, S68, U10, C6, D38, S54.
Tape, Splicing, B22, B50, C54, E22, M52, M66, M42, R20, S68, U10, C6, D38, S54, G22.
Thread, Rubber, F2, R20, U10, C6, G22.
Tiling, B72, G50, M50, T20, R18, U4, U10, V12, C6, D38, G22.
Tips, Cane, C40, D6, F14, F20, F32, M50, M52, Q4, T16, U10, C6, G22, C18.
Tips, Chair, C40, D6, F14, F20, F32, M50, M52, Q2, Q4, R18, T16, U10, C6, D38, G22, C18.
Tips, Crutch, C40, D6, F14, F20, F32, M50, M52, Q2, Q4, R18, T16, U10, C6, G22, C18.
Tips, Mess Table, C18.
Tissue, Gutta Percha, U10.
Toys, D6, F14, M52, S60, U10, C6, G22.
Treads, Stair, B42, B50, C40, C54, E26, F20, G50, H8, M50, M52, M28, Q2, Q4, R18, U10, V12, C6, D38, G22.
Tubes, Grain Drill, B42, C40, G30, G50, M52, U4, U10, C6, G22.
Tubes, Linotype, U10.
Tubing, B42, B50, B72, C40, C54, C64, D2, D6, E32, E26, E32, F14, F20, F36, G30, G33, G50, H8, I12, M50, M52, M66, N28, Q2, Q4, R18, R20, S68, T6, T16, U4, U10, V12, V22, W42, C6, D38, G22, C18.
Tubing, Braided, B42, C40, E20, E26, H8, M50, M52, S68, T6, U10, W42, C6, D38, G22.
Tubing, Cloth Inserted, B42, B50, C40, C54, D40, E22, E26, E32, G30, G50, H8, M50, M52, N28, P20, Q4, R20, S68, T6, U10, V12, W42, C6, D38, G22.
Tubing, Gas Lamp Connection, C40, C54, D40, E26, E32, F20, G30, H8, M52, Q4, R18, S68, T6, U10, C6, D38, G22.
Tubing, Invalid Chair, B50, E26, F20, H8, R18, U10, C6, D38, G22.
Tubing, Pure Rubber, B42, B50, B72, C40, C54, D6, D40, E20, E22, E26, E32, F2, F14, F20, F36, G30, G50, H8, M52, M66, Q2, Q4, R18, R20, S68, T6, T16, U4, U10, V12, W42, C6, D38, W10, G22, C18.
Tubing, Syringe, B50, B2, B6, E26, F14, F20, F36, G33, G50, H8, M52, M66, Q2, Q4, S68, T6, T16, U4, U10, C6, D38, W10, G22, C18.
Typewriter Platens and Specialties, B42, B50, B72, G50, R18, S50, U10, V12, C6, D38, G22.
Valves, Bibb, U10, C18.
Valves, Hydraulic, B42, C40, F20, G50, M52, N28, P20, Q4, R20, S50, S68, T6, U4, U10, V6, W42, C6, D38, W10, G22.
Valves, Pillow, B42, C64, F20, M52, P20, Q4, S50, S68, T6, U4, U10, V6, C6, G22, C18.
Valves, Pump, A38, B42, B72, C40, C54, C64, E22, E26, E32, F20, G30, G50, H8, J10, M52, N28, P20, Q4, R18, R20, S50, S68, T6, U4, U10, V6, V12, W42, C6, D38, P52, W26, G22, C18.
Valves, Pump, Balata, M24.
Valves, Reducing, B42, F20, G50, P20, Q4, S68, T6, U4, U10, V6, C6, D38, P52, G22.
Vents, Beer, M50, M52, Q4, S50, S68, U10, C6, G22, C18.
Washers, Air Brake, B42, C40, C54, E22, F20, G30, G50, H8, M50, M52, P20, Q4, R18, S50, S68, T6, U4, U10, C6, D38, P52, W26, G22, C18.
Washers, Beer Pump, B42, C40, C54, F20, G50, M52, Q4, R18, S50, S68, T6, U4, U10, C6, D38, W10, G22.
Washers, Bibb, B24, B42, C40, C54, E22, M42, M50, M52, P20, Q4, S50, S68, U4, U10, V22, C6, D38, W10, G22, C18.
Washers, Bottle Stopper, B42, B72, C40, C54, C64, F14, F20, G50, M50, M52, Q4, S68, U4, U10, C6, D, 38, P52, W10, G22.
Washers, Bunghole, B42, B72, C54, F20, G50, M50, M52, R18, S50, S68, T6, U4 U10, C6, P52, W26, W10, G22, C18.
Washers, Cone, B42, C54, M50, M52, S68, U4, U10, V12, C6, W10, G22, C18.
Washers, Disc, B42, C54, E32, M50, M52, Q4, S68, U4, U10, V12, C6, W10, G22, C18.
Washers, Filter, B42, C54, C64, E22, E32, F20, M50, R18, T6, U4, U10, C6, W10, G22.
Washers, Gauge Glass, A58, B42, B72, C40, C54, E22, F20, G30, G50, H8, I12, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, C6, D38, W26, W10, G22, C18.
Washers, Hose, A58, B42, B50, B72, C40, C54, C64, E22, E26, F20, G30, G38, G50, H8, I12, M50, M52, N28, Q2, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, W10, G22, C18.
Washers, Seat Hinge, B42, C54, E26, I12, M50, M52, T6, U4, U10, C6, W10, G22, C18.
Washers, Slip Joint, B42, C54, E22, K50, I12, M50, M52, T6, U4, U10, V12, C6, D38, W10, G22, C18.
Washers, Spud, B42, C54, E32, E26, G50, M50, M52, S50, T6, U4, U10, C6, D38, W10, G22, C18.
Washers, Stuffing Box, B42, B72, C40, E22, G38, H8, M50, R18, R20, S50, T6, U4, U10, V12, C6, W10, G22, C18.
Washers, Syphon, B42, E22, E26, F20, G50, M50, M52, Q4, T6, U4, U10, C6, W26, W10, G32, C18.
Washers, Syphon Valve, B42, E22, F20, M50, M52, U4, U10, C6, W26, W10, G22, C18.
Washers, Top Bibb, B42, C40, E22, M50, M52, S68, U4, U10, C6, W10, G22, C18.
Washers, Union, B42, C54, C64, E22, E26, G50, H8, I12, M50, M52, Q4, R18, S68, T6, U4, U10, C6, W10, G22, C18.
Washers, Waste, B42, E22, I12, M50, M52, S68, T6, U4, U10, C6, G22, C18.
Wheels, Brewers, U10.
Wheels, Vulcanite Emery, B42, M50, U10, C6, W10, G22.
Wicking, U10.

Druggists' Sundries

Air Goods, D6, F14, G33, H40, M52, U10, A83, C6, G22.
Aprons, Laboratory, U10, G22.
Aprons, Sanitary, A38, B66, G33, K12, M66, U10, C6, M88, G22.
Aprons, Surgical, A38, D6, G33, H40, K12, U10, C6, G22.
Aprons, X-Ray, U10.
Atomizers, D6, G33, M52, T16, U10, C6, G22.
Bags, Face, C22, D6, F14, G33, G36, H40, M52, M66, T16, U10, C6, G22, P10.
Bags, Gas, B66, D6, H40, M66, U10, C6, D38, G22.
Bags, Gas Main, D6, H40, M66, U10, C6, G22.
Bags, Injector, D6, M66, U10, C6, G22.
Bags, Ice, B66, C22, D2, F14, G33, G36, H40, L14, M52, T16, U10, C6, G22.
Bags, Sponge, A38, G22.
Bags, Syringe, C22, D2, D6, F14, G33, G36, H40, M52, M66, T14, T16, U10, C6, G22, P10.
Bags, Throat, D2, D6, F14, G33, H40, M52, U10, C6, G22, P10.
Bags, Water, U10.
Balloons, Toy, D6, F14, G46, M66, S60, U10, W14, C6.
Balloons, Toy Advertising, D6, F14, G46, M66, S60, U10, W14, C6.
Bandages, Surgical, D6, G33, H40, T16, U10, C6, G22.
Bands, Chin, D6, F14, M66, S60, U10, C6, G22.
Bands, Elastic, D6, E26, F2, G33, H40, T16, U10, C6, D38, G22.
Bands, Forehead, D6, M66, S60, U10, C6, G22.
Basins, Folding, D6, G33, H40, U10, C6, G22.
Bath Folding Tubs, D6, H40, U10.
Beds, Air, D6, G33, H40, U10, A83, G22.
Beds, Water, D6, G33, H40, U10, C6, G22.
Bottles, Horse Medicine, U10.
Bottles, Water, C22, D2, D6, F14, G33, G36, H40, M52, M66, T16, U10, C6, G22, P10.
Bulbs, D2, D6, F14, G33, H40, M52, S50, T16, U10, C6, G22, C18.
Bulbs, Atomizer, U10, C18.
Bulbs, Camera, U10.
Bulbs, Furnace, D2, D6, M52, S50, T16, U10, C6, G22, C18.
Bulbs, Pyrography, U10.
Caps, Bathing, B66, C22, D6, F14, G33, H40, M66, U10, C6, G22, P10.
Caps, Ice or Water, C22, D2, D6, F14, G33, G36, H40, M52, M66, T16, U10, C6, G22, P10.
Catheters, D6, F14, H40, L14, M66, T16, U10, C6, G22.
Combs, U10, V24, C6, G22.
Cots, Finger, C22, D6, F14, G33, H7, H40, L14, M66, S60, T16, U10, C6, G22.
Cups, Cupping, D6, U10, C6, G22.
Curtains, Shower Bath, H40, K12, U10, C6, G22.
Cushions, Ear, C18.
Cushions, Embalming, D6, H40, U10, C6, G22.
Cushions, Heel, L30, C6, G22.
Cushions, Invalid, D2, D6, F14, G33, H40, M66, T16, U10, C6, G22, P10.
Cushions, Operating, D2, D6, F14, G33, H40, U10, C6, G22.
Dam, B66, D2, D6, G33, H40, M66, T14, T16, U10, C6, G22.
Dilators, D6, M66, U10, W10, G22.
Drains, D6, U10, C6, G22.
Droppers, Medicine, D6, F14, T16, U10, C6, G22.
Druggists' Specialties, D6, F14, G36, H7, H40, M66, R50, S60, T14, U10, C6, G22.
Druggists' Sundries, C22, D2, D6, F14, H7, H40, M66, R50, T14, U10, C6, G22.
Fittings, Nursing Bottle, D6, T16, U10, C6, G22.
Gloves, Acid, C22, D6, F14, G33, H40, L14, M66, S60, U10, C6, G22.
Gloves, Household, C22, D2, D6, F14, G33, H40, L14, M66, S60, U10, C6, G22.
Gloves, Pure Gum, C22, D2, D6, F14, G33, H7, H40, L14, M66, S60, U10, C6, G22.

CLEVELAND STANDARD

Rubber Goods are Hand Made

We produce, in mechanical rubber goods, as in Tires and Tubes, only the highest in quality and most perfect in workmanship.

CLEVELAND-STANDARD Tires are guaranteed to 5000 and 7500 miles and must give satisfaction.

The STANDARD TIRE & RUBBER MFG. CO.
WILLOUGHBY, OHIO

The 'Royal Cord' Tire

There's a very big reason why the *'Royal Cord' Tire is the "Monarch of All Cord Tires":*

—the *'Royal Cord'* is the tire of supreme resiliency and elasticity;

—the *'Royal Cord'* is the tire of rugged endurance and toughness;

—the *'Royal Cord'* is the tire of masterful anti-skid service and amazing long mileage;

—the *'Royal Cord'* is the tire of beauty and distinction.

Other motorists have tried the *'Royal Cord'* and know this reason.

Try *'Royal Cords'* and learn how good a cord tire *can* be.

The 'Royal Cord' Tire is one of the five United States Tires that are making such phenomenal sale increases.

United States Tires

Indexed Buyers' Guide to Rubber Products—Continued

Druggists' Sundries—*Continued*

Gloves, Surgical, C22, D2, D6, F14, G33, H7, H40, L14, M66, S60, U10, C6, G22.
Gloves, X-Ray, U10.
Gum, Bandage, B66, D6, G33, H40, T14, T16, U10, C6, G22.
Hard Rubber Goods, D6, S68, T14, T16, U10, C6, W10, G22.
Masks, Face, C22, D6, F14, M66, S60, U10, C6, G22.
Materials, Auto Top, B50, H40, U10, C6, G22.
Mats, H40, U10, C6, D38, G22.
Mattresses, Air, D6, G33, H40, U10, A83, C6, G22.
Mittens, Acid, C22, D6, F14, G33, H40, S60, U10, C6, G22.
Mittens, Motormen's, D6, G33, H40, S60, U10, C6.
Mittens, Tanners', C22, D6, F14, G33, H40, S60, U10, C6.
Nipples, D2, D6, F14, G46, L14, H66, R50, S50, S60, T16, U10, C6, G22.
Pads, Finger, D6, F2, S60, U10, C6, G22.
Pans, Bed, D6, G33, H40, U10 C6, G22.
Pessaries, D6, F14, M66, T16, U10, C6, G22.
Pipes and Fittings, Syringe, D2, D6, F14, G33, G36, H40, M66, T14, T16, U10, C6, G22.
Pouches, Colostomy, U10, C6, G22.
Pouches, Tobacco, B66, D2, D6, T16, U10, C6, G22, P10.
Protectors, Bunion, L30.
Pumps, Breast, D2, D6, F14, G33, M55, M66, T14, T16, U10, C6, G22, C18.
Respirators, D6, M66, U10, C6, G22.
Rings, Nursery, D6, F2, G46, R50, U10, C6, G22.
Sheeting, Hospital, B66, D6, G33, H40, K12, M66, U10, C6, M88, G22.
Shields, Breast, D6, F14, U10, C6, G22.
Shields Eye, C18.
Shields, Nipple, D6, F14, U10, C6, G22.
Silencers, Pail, D6, U10, C6, G22.
Sponges, F14, G33, L30, M66, U10, C6, G22.
Sprays, Bath, H40, H52, U10, C6, G22.
Stalls, Finger, D6, F14, G33, H7, H40, M66, S60, U10, C6, G22.
Stalls, Thumb, D6, F14, G33, H7, H40, M66, S60, U10, C6, G22.
Stoppers, D6, F14, H40, M50, U10, C6, W10, G22.
Stoppers, Laboratory, D6, F14, M50, M52, R50, U10, C6, W10, G22.
Stopples, D6, F14, H40, M52, R50, U10, C6, G22.
Syringes, Bulb, D2, D6, F14, G33, H40, M52, T14, T16, U10, C6, G22, C18.
Syringes, Bulb Combination, D6, G33, H40, M52, T14, U10, C6, G22.
Syringe Combination Sets, C22, D2, D6, F14, G33, G36, H40, M52, M66, U10, C6, G22, P10.
Syringes, Ear, D6, F14, G33, M52, M66, T14, T16, U10, C6, G22.
Syringes, Embalming, U10.
Syringes, Ear and Ulcer, D2, D6, F14, G33, M52, M66, T14, T16, U10, C6, G22, C18.
Syringe Fittings, D2, D6, F14, G33, G36, H40, M66, T14, T16, U10, C6, G22.
Syringes, Fountain, C22, D2, D6, F14, G33, G36, H40, M52, M66, T14, T16, U10, C6, G22, P10.
Syringes, Horse, U10.
Syringes, Infant, D2, D6, F14, G33, H40, M52, M66, T14, T16, U10, C6, G22.
Syringes, Water Bottle, C22, D2, D6, F14, G33, G36, H40, M52, M66, T14, T16, U10, C6, G22, P10.
Tips, Crutch, D6, F14, M52, T16, U10, C6, G22, C18.
Tourniquets, D6, H40, T16, U10, C6, G22.
Tubes, Colon, D6, F14, H40, L14, M66, T16, U10, C6, G22.
Tubes, Dental, D6, M66, U10, C6, G22.
Tubes, Irrigating, D6, H40, L14, M66, U10, C6, G22.
Tubes, Nasal Feeding, D6, U10, C6, G22.
Tubes, Rectal, D6, F14, H40, L14, M66, T16, U10, C6, G22.
Tubes, Stomach, D6, F14, H40, L14, M66, T16, U10, C6, G22.
Tubes, Surgical, D6, H40, L14, M66, S60, U10, C6, G22, C18.
Tubing, B50, D2, D6, E26, F2, F14, G33, G36, H8, H40, L14, M50, M52, M66, Q2, T16, U4, U10, C6, D38, W10, G22, C18.
Urinals, D6, H40, M52, T16, U10, C6, G22.

Footwear

Arctics, B18, B52, C52, F22, G33, G34, G50, H46, M72, U10, C6, G22, C66.
Boots, B18, B52, C52, F22, G33, G34, G50, H46, M72, U10, A66, C6, D38, M82, G22, C66.
Boots, Firemen's, B18, B52, C52, F22, G33, G34, G50, H46, U10, C6, D38, G22.
Findings, E16, C6, G22.
Heels, B18, B50, B52, D36, E26, E32, F20, F22, F32, G10, G30, G50, L30, M52, M66, P4, S74, T2, C6, D38, P52, G22.
Overshoes, B18, B52, C52, F22, G33, G34, G50, H46, M72, U10, C6, G22, C66.
Pants, Baptismal, U10.
Pants, Wading, G33, U10, C6.
Shoes, B18, B52, C52, F22, G34, G50, H46, M72, U10, A66, C6, G22, C66.
Shoes, Outing, A66, C66.
Shoes, Tennis, B18, B52, C52, G33, G34, G50, H46, U10, A66, C6, C66.
Soles, B18, B50, D36, E26, F20, F22, F32, G10, G30, G50, L30, M46, M52, M66, P4, Q2, T2, T4, U10, C6, D38, H56, P52, G22.
Soling, B50, B52, F20, F32, G10, G34, G50, M66, P4, Q2, U10, C6, D38, H56, P52, G22.

Woven Elastic Fabrics

Cord, R20, D38, G22.
Thread, R20, U10, E12, G22.
Webbing, R20, G22.
Wire, Rubber Covered, B22.

Stationers' Supplies

Bands, Elastic, D6, E26, F2, H40, T16, U10, C6, E12, G22.
Erasers, F2, R22.
Pens, Fountain, A13, C58, P6, W8, G22.
Sacs, Fountain Pen, E22.
Sponge Rubber, Cup, M66.
Tips, Pencil, F2.

Tires and Accessories

Aprons, Automobile, B50, G50, U10, C6, G22.
Bands, Retread, M74.
Boots, A40.
Bumpers, Automobile, A88, C32, C40, C64, D36, F20, F22, G30, G50, I12, M42, M50, M52, N28, Q4, R18, S50, T6, U4, U10, V12, V22, C6, D38, G22.
Bumpers, Truck, B42, C40, C64, D36, E32, F22, G30, G50, M42, M50, M52, N28, Q4, R18, S50, T6, U4, U10, V12, D38, G22.
Cement, Rubber, A40, B42, B66, D40, E16, E32, F14, F20, F22, F26, G10, G30, G48, G50, H46, H50, L14, B50, M66, M74, P46, S37, U2, U10, V4, V12, B56, C6, D38, H56, G22.
Covers, Retread, B56. K12, C6, G22.
Fabrics, Auto Top, B50, E26, H40,
Flaps, M74, C66.
Grips, Bicycle, B66, C64, F20, F22, M42, M52, Q4, R18, U10, C6, D38, G22.
Hose, Auto Pump, B50, C40, C64, D40, E20, F22, G30, G50, H8, M50, M52, Q4, S68, T6, U4, U10, V12, W42, C6, G22.
Hose, Radiator, B42, C32, C40, C54, C64, D40, E20, E26, E32, F20, G30, G50, H8, I12, M42, M50, M52, N28, Q4, S68, T6, U4, U10, V12, W42, C6, D38, G22.
Mats, Automobile, B42, C40, C54, E32, F20, F22, G50, H8, M42, M50, M52, N28, Q4, S68, U4, U10, C6, D38, W10, G22.
Patches, A40, F40, G10, M74, B58, G22.
Reliners, A40, F20, G10, M74.
Repair Kits, D40, F20, F22, G10, L14, M66, S68, U10, V12, B56, C6, D38, G22.
Repair Stock, A40, C64, E26, F20, F22, F26, G10, G30, G48, G50, H8, L14, M42, M66, M72, P48, S76, T6, U10, V12, B56, B58, C6, D38, K3, S8, G22.
Rims, Wheel, D38, G22.
Rubbers, Pedal, C32, C64, E26, F20, F22, G50, M42, M52, R18, T6, U4, U10, C6, W10, G22.
Strips, Wind Shield, B50, B72, C32, C40, C64, D36, D40, E26, E32, F22, G30, G50, H8, M42, M52, R18, T6, U4, U10, V12, C6, D38, G22.
Tape, Tire Repair, B50, C40, F22, F10, J10, M52, M66, N42, S68, U10, V4, C6, D38, G22.
Tires, Airless, S76, U4, U10, C6, G22.
Tires, Airplane, C64, D40, F22, G10, G50, U4, U10, C6, D38, G22.
Tires, Automobile, Pneumatic, A14, A28, A40, B8, B32, B68, C32, C54, C64, C80, D16, D32, D40, E18, E26, F20, F22, F26, G10, G16, G30, G36, G42, G48, G50, H8, H12, H24, H46, H50, I16, I12, L10, L14, M6, M10, M16, M36, M42, M64, M65, M66, M72, N16, N24, N28, P20, P28, P32, P48, Q4, S28, S50, S56, S74, S76, T4, T6, T16, U4, U10, V12, V22, W36, B56, B58, C6, D38, H56, M10, M26, S8, G22, C66, P10.
Tires, Automobiles, Cushion, F22, S76, U4, U10, C6, G22.
Tires, Baby Carriage, B8, B50, B72, C40, C64, E32, F22, G30, G48, G50, H8, I12, M52, N28, Q2, Q4, R18, S68, U4, U10, V22, C6, D38, W10, G22.
Tires, Bicycle, C64, F20, F22, F26, G30, I12, L14, U4, U10, C6, D38, G22.
Tires, Carpet Sweeper, B72, C32, C40, C64, E26, G50, H8, Q4, S50, S68, T6, N4, U10, C6, D38, G22.
Tires, Carriage, F22, G30, G50, U4, U10, C6, D38, G22.
Tires, Motorcycle, A40, B8, C64, D40, E2, F20, F22, F26, G30, M10, P32, P48, S76, U4, U10, B4, B58, C6, D38, M10, G22, P10.
Tires, Truck, Solid, B8, B72, C40, F22, G16, G30, G50, H46, H50, M10, P46, R42, S76, U4, U10, B58, C6, D38, M10, G22.
Tubing Tire Inflation, B42, C40, C64, D40, F22, F26, G30, G50, H8, M50, M52, Q4, R42, T6, U4, U10, V12, C6, D38, G22.
Tubes, Inner, A14, A28, A40, A68, B8, B32, B68, C32, C54, C64, C80, D16, D32, D40, E18, E26, E32, F20, F22, F26, G10, G16, G30, G36, G42, G48, G50, H8, H24, H46, H50, I16, I12, L10, L14, M10, M16, M36, M42, M64, M65, M66, M72, N16, N24, N28, P20, P28, P32, P48, Q4, S28, S50, S56, S74, S76, T4, T6, T16, U4, U10, V12, V22, W36, B56, B58, C6, D38, H56, M10, M26, S8, G22, C66, P10.

Proofed and Coated Fabrics and Products

Air Goods, D6, G33, H40, N10, C6, G22.
Aprons, Rubber, A42, A88, B50, B66, C44, D6, G33, G50, H40, K12, M66, U10, C6, D38, M88, G22.
Bags, Sleeping, A83.
Balloons, Military, A42, B62, U10, C6, G22.
Belts, Swimming, H40, U10, C6.
Bibs, Barbers, A88, B66, D6, M66, U10, C6.
Blankets, Army, A42, B62, C36, C44, F36, G33, G50, H40, K12, U10, C6, D38, G22.
Blankets Camp, A42, B66, C36, C44, F36, G33, G50, H40, K12, U10, C6, D38, G22.
Blankets, Horse, A42, C44, H40, K12, U10, C6, D38, M88, G22.
Capes, Rain, F36, A42, C36, C44, H40, K12, U10, C6, G22.
Cloth, Airplane, A42, B62, H40, K12, U10, C6, G22.
Cloth Backing, C44.
Cloth, Bellows, A42, A88, B50, B66, C36, C44, G50, H40, K12, U10, C6, G22.
Cloth Camera, C36, C44, H40, U10, C6, G22.
Cloth, Carriage, A42, B50, C44, H40, U10, C6, D38, G22.
Cloth, Rubber, A42, B50, B62, B66, C36, C44, F36, H40, K12, S37, U10, C6, M88, G22.
Cloth, Shoe Covering, C44.
Cloth, Stay, C44.
Cloth X-Ray, U10, G22.
Clothing, Rubber, A42, C36, C44, F36, G33, H40, K12, M46, U10, A66, M88, G22.
Coats Firemen's, A42, C36, C44, F36, G33, H40, K12, U10, C6, G22.
Collars, Swimming, C44, G33, H40, U10, C6, G22.
Covers, Merchandise, F36.
Curtains, Bath, A88, B66, F36, H40, U10, C6, G22.
Cushions, D6, F14, H40, U10, A83, C6, G22.
Diapers, A88, B66, D6, H40, M66, U10, C6, G22.
Diving Apparatus, H40, U10, C6, G22.
Fabrics, Auto Top, A42, A88, B50, B62, H40, K12, U10, C6.
Fabrics Coated and Proofed, A40, A42, A88, B50, B62, H40, K12, S37,, U10, C6, D38, M88, G22.
Fabrics, Elastic, H40, U10, C6.
Fabrics, Proofed, A42, A88, B62, F36, H40, K12, U10, C6, D38, G22.
Gloves, Driving, U10.
Innersoles, Gum, Canvas Coated, C44.
Leggins, G33, H40, A42, U10, C6.
Life-Preservers, A42, D6, G33, H40, U10, A83, C6, G22.
Mackintoshes, A42, B62, F36, G33, H40, K12, U10, C6, G22.
Material, Leggings, U10.
Ponchos, A42, A88, B50, B62, F36, G33, K12, U10, C6, G22.
Raincoats, Cravenette, A42.
Sheeting, Hospital, A88, B50, B66, D6, F36, G33, K12, U10, C6, D38, M88, G22.
Shields, Dress, B66, C6, M88.

Electrical Goods

Automobile Wire and Cables, B22, N42, R26.
Bushings, Lamp Socket, J10, N42, G22.
Cables, Aerial, A84, B22, D20, E19, I12, N42, S2, G22.
Cables, Armored, A84, B22, E19, I12, N42, S2, G22.
Cables, Insulated, A84, B22, B52, D20, E19, I12, N42, P36, R26, S2, G22.
Cables, Lead Coated, A84, E19, I12, N42, S2, G22.
Cables, Rubber Covered, B22.
Cables, Submarine, A84, D20, E19, I12, N42, S2, G22.
Cables, Underground, A84, D20, E19, I12, N42, S2, G22.
Couplings, Flexible Insulated, R42.
Gloves, Electricians, F14, G33, N42, S60, C6, G22.
Hard Rubber, Electrical, J10, N42, S68, T14, V24, D38, G22.
Insulating Material, D20, J10, L12, M52, N42, R42, T14, V22, G22.
Mittens, Electricians', C22.
Pliers, Insulated, J10, N42, R42, S68, V22.
Screw Drivers, Insulated, J10, N42, R42, S68, G22.
Sleeves, Electricians', C22.
Splicing Compounds, B22, B50, J10, N28, N42, S2, S68, C6, D38, G22.
Stools, Electricians', C22.

Tape, Electrical, B22, B59, E22, J10, M52, N42, S2, S63, C6, D38.
Wire, Armored, A84, B22, D20, I12, N42, S2, G22.
Wire, Insulated, A4, A8, A84, B22, B52, D20, I12, N42, P36, R26, S2, G22.
Wire, Lead Covered, A84, I12, N42, S2, G22.

Sporting Goods

Bags, Punching, D6, S38, U10, C6, G22, P10.
Balls, Bat, F14, S38, U10, C6, G22.
Balls, Foot, H40, S38, U10, C6, G22.
Balls, Golf, S38, S42, U10, D38, G22.
Balls, Hand, U10.
Balls Inflated, F14, S38, U10, C6, G22.
Balls, Play, G46.
Balls, Polo, U10.
Balls, Rubber, D38, G22.
Balls, Solid, E32, F14, S38, U10, C6, G22.
Balls, Tennis, S38, U10, C6, G22.
Bladders, Association Ball, U10, G22.
Bladders, Basket Ball, U10, G22.
Bladders, Football, D6, M66, S38, T16, U10, C6, G22, P10.
Bladders, Punching Bag, M66, G22.
Bladders, Volley, U10.
Centers, Baseball, S38, S50, T16, U10, G22.
Chips, Poker, U10, C6, G22.
Plates, Baseball Home, S38, U10, G22.
Plates, Baseball Pitcher, S38, U10, G22.
Quoits, Rubber, E22.

Hard Rubber Goods

Automobile Parts, E32, N42, T14, N10, G22.
Barrels, Fountain Pen, U10, G22.
Bits, Pipe, T14, U10, G22.
Caps, Fountain Pen, E32, U10, G22.
Caps, Radiator, U10, G22.
Cases, Thermometer, U10, G22.
Covers, Battery, U10, W10, G22.
Discs, Water Meter, S63, U10, G22.
Ebonite, T14, U10, G22.
Electrical Goods, S63, T14, U10, G22.
Feeds, Fountain Pen, U10, G22.
Grips, Pistol, U10, G22.
Handles, U10, G22.
Jars, Battery, B63, N42, U10, W10, G22.
Protectors, Baseball Body, H40, M52, S38, T16, N10, G22.
Tees, Golf, S50, U10, D38, G22.
Parts, Battery, U10, G22.
Parts, Internal, U10, G22.
Pipes, T16, U10, G22.
Plates, Gun Butt, U10, G22.
Rods, S63, U10, G22.
Scale, Razor, T14, U10, G22.
Separators, Battery, N42, U10, G22.
Sheet, N42, S63, U10, G22.
Specialties, Industrial, U10, W10, G22.
Spiders, Steering, U10, G22.
Stock, Fountain Pen, U10, G22.
Syringe Fittings, D6, F14, H40, T14, T16, U10, G22.
Syringes, T16, U10, G22.
Tubing, H8, U10, G22.
Vents, Battery, U10, G22.

Alphabetical List of Rubber Manufacturers

THE RUBBER AGE will furnish information and addresses of all companies listed below. Names of advertisers in this issue are printed in heavy face type.

A 2—A. & A. Rubber Co.
A 4—A. A. Wire Co., Inc.
A 6—Acme Rubber Mfg. Co.
A 8—Acorn Insulated Wire Co.
A 10—Advance Rubber Co.
A 12—Aetna Rubber Co.
A 13—Aiken-Lambert Co.
A 14—Ajax Rubber Co., Inc.
A 16—Akron Rubber Works.
A 18—Akron Tire Co., Inc.
A 20—Alden Rubber Co.
A 22—Allcock Mfg. Co.
A 24—Allen, W. D., Mfg. Co.
A 26—Alliance Rubber Co.
A 28—Amazon Rubber Co. See Advertisement on Page 343.
A 30—American Asbestos Co.
A 32—American Electrical Works.
A 34—American Hard Rubber Co.
A 36—American Lead Pencil Co.
A 38—American Para Rubber Co.
A 40—American Rubber & Tire Co.
A 42—American Rubber Co.
A 44—American Rubber Fabric Co.
A 46—American Rubber Mfg. Co.
A 48—American Rubber Mfg. Co. of N. J.
A 50—American Steam Packing Co.
A 52—American Steel & Wire Co.
A 54—American Tire Co.
A 56—American Tire Co.
A 58—American Wringer Co.
A 60—Anchor Packing Co.
A 62—Anderson, L. M., Co.
A 64—Anderson Rubber Works.
A 66—Apsley Rubber Co.
A 68—Archer Rubber Co.
A 68—Armstrong Rubber Co., Inc.
A 70—Asbestos Fibre Spinning Co.
A 72—Asbestos & Rubber Works of America.
A 74—Asbestos & Rubber Works of New Jersey.
A 76—Asbestos Textile Co., Inc.
A [illegible]—Aseptic Products Co.
A [illegible]—Ash, Claudius, Sons & Co., Ltd.
A 82—Astoria Wire Co.
A 83—Athol Mfg. Co.
A 84—Atlantic Insulated Wire & Cable Co.
A 86—Atlantic Mfg. Co.
A 88—Atlantic Rubber Co.
A 90—Atlas Auto Supply Co.
A 92—Augustine, W. B.
A 94—Avon Sole Co.

B 4—Baltimore Rubber Tire Mfg. Co., Inc.
B 6—Banigan Rubber Co.
B 8—Batavia Rubber Co.
B 10—Bauer & Black.
B 12—Baumann Rubber Co.
B 14—Bay State Insulated Wire & Cable Co.
B 16—Beacon Rubber Mfg. Co.
B 18—Beacon Falls Rubber Shoe Co.
B 20—Behrend & Rothschild.
B 22—Belden Mfg. Co.
B 24—Bell, Andrew, Estate of.
B 26—Belmont Packing & Rubber Co.
B 28—Berlin Rubber Mfg. Co.
B 30—BeSaw Tire & Rubber Co.
B 32—Bergougnan Tire Corp.
B 34—Bishop Gutta Percha Co.
B 36—Blake, Whitney Co.
B 38—Blakesley Novelty Co.
B 40—Boonton Rubber Mfg. Co.
B 42—Boston Belting Co.
B 44—Boston Blacking Co.
B 46—Boston Insulated Wire & Cable Co.
B 48—Boston Rubber Shoe Co.
B 50—Boston Woven Hose and Rubber Co
B 52—Bourn Rubber Co.
B 54—Bowers Rubber Works.
B 56—Bowling Green Rubber Co.
B 58—Braender Rubber & Tire Co.
B 60—Braintree Rubber Cement Co.
B 62—British-American Mfg. Co.
B 64—Brock, A. S., Rubber Co.
B 66—Brooklyn Shield & Rubber Co.
B 68—Brunswick - Balke - Collender Co.
B 70—Bucyrus Rubber Co.
B 72—Buffalo Weaving & Belting Co.

C 2—C. C. C. Fire Hose Co.
C 4—Canada Wire & Cable Co., Ltd.
C 6—Canadian Consolidated Rubber Co., Ltd.
C 8—Canadian General Electric Co., Ltd.
C 10—Canadian Rubber Company of Montreal, Ltd.
C 12—Canadian Top Co., Ltd.
C 14—Cancos Mfg. Co.
C 16—Candee, L., & Co.
C 18—Canfield, H. O., Co. See Advertisement on Page 345.
C 20—Canfield Rubber Co.
C 22—Canton Rubber Co.
C 24—Carborundum Co.
C 26—Carolina Puncture Proof Tubing Co.
C 28—Carr, F. S., Co.
C 30—Centaur Rubber & Tire Co., Inc.
C 32—Century Rubber Works.
C 34—Chemical Rubber Co.
C 36—Chicago Rubber Clothing Co.
C 38—Cigol, F. A., Rubber Co.
C 40—Cincinnati Rubber Mfg. Co.
C 42—Clark Rubber Mfg. Co.
C 44—Clifton Mfg. Co.
C 46—Collyer Insulated Wire Co.
C 48—Colorado Tire & Leather Co.
C 50—Columbia Tire & Rubber Co.
C 52—Columbus Rubber Co. of Montreal, Ltd.
C 54—Combination Rubber Mfg. Co.
C 56—Community Rubber Co.
C 58—Conklin Pen Mfg. Co.
C 60—Conquerer Rubber Cement Co.
C 62—Consolidated Hoof Pad Co.
C 64—Continental Rubber Works.
C 66—Converse Rubber Shoe Co.
C 68—Cortland Tire & Rubber Co.
C 70—Craig Dental Mfg. Co.
C 72—Crandall Packing Co.
C 74—Crescent Insulated Wire & Cable Co.
C 76—Cummer-Dowswell, Ltd.
C 78—Cummings, G. R., & Co.
C 80—Cupples Co.
C 82—Cutten & Foster.

D 2—Davidson Rubber Co.
D 4—Davis-Fry Mfg. Co.
D 6—Davol Rubber Co.
D 8—Day, H. P. & E., Inc.
D 10—Dayton Rubber Mfg. Co.
D 12—Dealers Steam Packing Co.
D 14—Deane Plaster Co.
D 16—Delion Tire & Rubber Co.
D 18—De Silva Rubber Co., Inc.
D 20—Detroit Insulated Wire Co.
D 22—Dick, R. & J., Ltd.
D 24—Dixon, Joseph, Crucible Co.
D 26—Doherty, Eugene, Rubber Works, Inc.
D 28—Dominion Rubber Co., Ltd.
D 30—Dominion Tire Co., Ltd.
D 32—Dreadnaught Tire & Rubber Co.
D 34—Dry Climate Tire Mfg. Co.
D 36—Dryden Rubber Co.
D 38—Dunlop Tire & Rubber Goods Co., Ltd.
D 40—Dural Rubber Corp.

E 2—Eagle Pencil Co.
E 4—Eagle Rubber Co.
E 6—Eagle Rubber Cement Co.
E 8—Eastern Electric Cable Co.
E 10—Eastern Rubber Co.
E 12—Easthampton Rubber Thread Co.
E 14—East Palestine Rubber Co.
E 16—Eclipse Cement & Blacking Co.
E 18—Ehman Tire & Rubber Co.
E 19—Electric Cable Co.
E 20—Electric Hose & Ruber Co.
E 22—Elkhart Rubber Works.
E 24—Ellis Cement Co.
E 26—Empire Rubber & Tire Co.
E 28—Endura Mfg. Co.
E 30—Eudurance Tire & Rubber Co.
E 32—Essex Rubber Co., Inc. See Advertisement on Page 345.
E 34—Eureka Cement Co.
E 36—Eureka Fire Hose Mfg. Co.
E 38—Eureka Packing Co.
E 40—Eureka Rubber Mfg. Co.
E 42—Excello Raincoat Co.

F 2—Faber, A. W.
F 4—Faber, Eberhard, Rubber Co.
F 6—Fabric Fire Hose Co.
F 8—Fairfield Rubber Co.
F 10—Falls Rubber Co.
F 12—Falls Novelty Co.
F 14—Faultless Rubber Co.
F 16—Featheredge Rubber Co.
F 18—Federal Asbestos Co.
F 20—Federal Rubber Co.
F 22—Firestone Tire & Rubber Co.
F 24—Fisk, Ltd.
F 26—Fisk Rubber Co.
F 28—Flexible Rubber Goods Co.
F 30—Ford Motor Co.
F 32—Foster Rubber Co.
F 34—Franche, C. E. Co.
F 36—Franklin Rubber Co.

G 2—G. & J. Tire Co.
G 4—Garlock Packing Co.
G 6—General Asbestos & Rubber Co.
G 8—General Electric Co.
G 10—General Tire & Rubber Co.
G 12—Giant Tire & Rubber Co.
G 14—Gibney Tire & Rubber Co.
G 16—Gillette Rubber Co.
G 18—Globe Rubber Co.
G 20—Globe Rubber Tire Mfg. Co.
G 22—Goodrich Rubber Co., The B. F.
G 24—Goodyear Rubber Co.
G 26—Goodyear Rubber Insulating Co.
G 28—Goodyear Tire & Rubber Co.
G 30—Goodyear Tire & Rubber Co. of Canada, Ltd.
G 32—Goodyear's India Rubber Glove Mfg. Co.
G 33—Goodyear's India Rubber Selling Co.
G 34—Goodyear's Metallic Rubber Shoe Co.
G 36—Gordon Tire & Rubber Co.
C 38—Gould Packing Co.
G 39—Granby Rubber Co., Ltd.
G 42—Great Eastern Rubber Co.
G 44—Greensburg Tire & Rubber Co.
G 46—Gregory Rubber Co.
G 48—Gryphon Tire & Rubber Co.
G 50—Gutta Percha & Rubber, Ltd.
G 52—Gutta Percha & Rubber Mfg. Co.

H 2—Habirshaw Electric Cable Co.
H 4—Hainsburg, N. H. & Co.
H 6—Hale, Alfred Rubber Co.
H 7—Halifax Rubber Co.
H 8—Hamilton Rubber Mfg. Co.
H 10—Hanover Rubber Co.
H 12—Hardman Tire & Rubber Co.
H 14—Hartford Rubber Works Co.
H 16—Hardright Co.
H 20—Hatch, Henry C.
H 22—Hauthaway & Sons, Inc.
H 24—Hawkeye Tire and Rubber Co.
H 26—Hazard Mfg. Co.
H 28—Hazen-Brown Co.
H 30—Heath, Edmund F. & Son.
H 32—Hendler, Jesse.
H 34—Hendrie, W. C. Rubber Co.
H 36—Hewitt Rubber Co.
H 40—Hodgman Rubber Co.
H 42—Hollingshead, R. M.
H 44—Holmes Packing & Supply Co.
H 46—Home Rubber Co.
H 48—Hood Rubber Co.
H 50—Hood Tire Co.
H 52—Hosmer, G. A. Co.
H 54—Howe - Baumann Balloon Co.
H 56—Howe Rubber Co.
H 58—Huntington Tire & Rubber Co.
H 60—Hygienic Rubber Works.

I 2—Ideal Rubber Co.
I 6—Independent Rubber Co., Ltd.
I 8—India Rubber Co.
I 10—Indian Rubber Mfg. Co., Inc.
I 12—Indiana Rubber & Insulated Wire Co.
I 14—International Rubber Co.
I 16—International India Rubber Corp.
I 18—Invincible Tire Co.

AMAZON
Announcement
Amazon Supertires are now guaranteed to render mileage in excess of
5000 MILES!
Figure the price of any tire against its mileage guarantee and you will find that "Amazon" costs you *less* per guaranteed mile than *any* tire on the market!
Now, more than ever before, Amazon stands for the utmost in tire value.
The Amazon Rubber Co.
AKRON, OHIO
New York Office, 2176 Broadway

Alphabetical List of Rubber Manufacturers—Continued

J 2—Jackson-Eno Rubber Co.
J 4—Jenkins Rubber Co.
J 6—Johnson, Henry Co.
J 8—Johnson & Johnson.
J 10—Johns-Manville, H. W. Co.
J 12—Johns-Pratt Co.
K 2—Kansas City Rubber & Tire Co.
K 3—Kanzee Tire Co., Ltd.
K 4—Kaufman Rubber Co., Ltd.
K 6—Keasbey & Mattison Co.
K 8—Keaton Tire & Rubber Co.
K 10—Kelly-Springfield Tire Co.
K 12—Kenyon, C. Co.
K 14—Kerite Insulated Wire & Cable Co.
K 16—Keystone Rubber Mfg. Co., Inc.
K 18—Killion Rubber Co.
K 20—King Rubber Co.
K 22—Kleinert, I. B. Rubber Co.
K 24—Knight Tire & Rubber Co.
K 26—Kokomo Rubber Co.

L 2—L. & M. Rubber Co.
L 4—La Crosse Rubber Mills Co.
L 6—La Favorite Rubber Mfg. Co.
L 8—Lambertville Rubber Co.
L 10—Lancaster Tire & Rubber Co.
L 12—Laurel Company.
L 14—Lee Tire & Rubber Co.
L 16—Lion Tire & Rubber Corp.
L 18—Lincoln Rubber Co.
L 20—Lovell Mfg. Co.
L 22—Lowell Insulated Wire Co.
L 24—Lubron Co.
L 26—Luzerene Rubber Co.
L 28—Lycoming Rubber Co.
L 30—Lynn Rubber Mfg. Co

M 2—McClurg Rubber Co.
M 4—McCormick, E. J. Rubber Co.
M 6—McCreary Tire & Rubber Co.
M 8—McCue & Pierce.
M 10—McGraw Tire & Rubber Co.
M 12—McIlroy Belting & Hose Co.
M 14—McLean Tire & Rubber Co.
M 16—McNaull Tire Co.
M 18—McTernen Rubber Mfg. Co.
M 20—Maguire Rubber Co.
M 22—Manhattan Rubber Mfg. Co.
M 24—Manheim Mfg. & Belting Co.
M 26—Mansfield Tire & Rubber Co.
M 28—Maple Leaf Rubber Co.
M 30—Marathon Tire & Rubber Co.
M 32—Marathon Tire & Rubber Co., Ltd.
M 34—Marion Insulated Wire & Rubber Co.
M 36—Marion Tire & Rubber Co.
M 38—Mason Tire & Rubber Co.
M 40—Massillon Rubber Co.
M 42—Mattson Rubber Co.
M 44—Mayflower Rubber Works Co.
M 46—Meade Rubber Co.
M 48—Mechanical Fabric Co.
M 50—Mechanical Rubber Co. (Chicago).
M 52—Mechanical Rubber Co. (Cleveland).
M 54—Mercer Rubber Co.
M 56—Merchants' Rubber Co.
M 58—Metal Hose & Tubing Co.
M 62—Meyer Rubber Co.
M 64—Michelin Tire Co.
M 65—Midland Tire & Rubber Co.
M 66—Miller Rubber Co. See Advertisement on Page 343.
M 68—Miner Rubber Co., Ltd.
M 70—Minzensheimer, Dr. Her.
M 72—Mishawaka Woolen Mfg. Co.
M 74—Mohawk Rubber Co.
M 76—Montgomery Bros., Inc.
M 78—Moore, Alfred F.
M 80—Morgan & Wright.
M 82—Mulconroy Company, Inc.
M 84—Mutty, L. J. Co.
M 86—Mutual Tire & Rubber Co.
M 88—Mystic Rubber Corp.

N 2—Narragansett Rubber Co.
N 4—National Aseptic Laboratories.
N 6—National Co.
N 8—National India Rubber Co.
N 10—National Rubber & Specialties Co.
N 12—National Rubber Co.
N 14—National Rubber Mfg. Co.
N 16—National Tire & Rubber Co.
N 18—Needham Tire & Rubber Co.
N 20—Newark Rubber Co.
N 22—New Brunswick Rubber Co.
N 24—New Castle Rubber Co.
N 26—New England Cable Co.
N 28—New Jersey Car Spring & Rubber Co.
N 30—New Jersey Rubber Supply Co.
N 32—New York Belting & Packing Co.
N 34—New York Insulated Wire Co.
N 36—New York Mackintosh Co.
N 38—New York Rubber Co.
N 40—New York Shield Co.
N 42—Northern Electric Co., Ltd.
N 44—Northland Rubber Co., Inc.
N 46—Norwalk Tire & Rubber Co.

O 2—O. K. Tire Co.
O 4—Okonite Co.
O 6—Olden Rubber Mfg. Co.
O 8—Oliver Rubber Mfg. Co.
O 12—Omo Mfg. Co.
O 12—Oriental Rubber Co.

P 2—Packard Electric Co.
P 4—Panther Rubber Mfg. Co.
P 6—Parker Pen Co.
P 8—Parker, Stearns & Co.
P 10—Partridge, F. E. Rubber Co.
P 12—Pearce-Arrow Tire & Rubber Co.
P 14—Pearce Tire & Rubber Co.
P 16—Peerless Cement Co.
P 18—Peerless Insulated Wire & Cable Co.
P 20—Peerless Rubber Mfg. Co.
P 22—Peerless Tire & Rubber Co.
P 24—Pennsylvania Rubber Co.
P 26—Perfection Tire & Rubber Co.
P 28—Perfection Tube Co.
P 30—Peters Mfg. Co.
P 32—Pharis Tire & Rubber Co.
P 34—Phillips, Eugene F., Electrical Works, Ltd.
P 36—Phillips Insulated Wire Co.
P 38—Phoenix Hermetic Co.
P 40—Pike Rubber Co.
P 42—Pines Rubber Co., Inc.
P 44—Plymouth Rubber Co.
P 46—Polack Tyre & Rubber Co.
P 48—Portage Rubber Co.
P 50—Porter Rubber Co.
P 52—Portland Rubber Mills
P 54—Prenzel, A. H., Rubber Co.
P 56—Progress Rubber Co.
P 58—Progressive Rubber Co.
P 60—Puget Sound Rubber Co.

Q 2—Quabaug Rubber Co.
Q 4—Quaker City Rubber Co.
Q 6—Quality Tire & Rubber Co.
Q 8—Quinn, K. J., & Co.

R 2—Racine Auto Tire Co.
R 4—Racine Rubber Co.
R 6—Rainbow Rubber Co.
R 8—Raley Rubber Co.
R 10—Raymond & Co.
R 12—Reach, A. J., Co.
R 14—Reading Rubber Mfg. Co.
R 16—Reality Rubber Co.
R 18—Republic Rubber Co.
R 20—Revere Rubber Co.
R 22—Roberts Rubber Co., Weldon.
R 24—Roebling's, John A., Sons Co.
R 26—Rome Wire Co.
R 28—Rosenthal & Katz.
R 30—Rosenwald & Weil.
R 32—Royal Equipment Co.
R 34—Royal Rubber Cement Co.
R 36—Royal Rubber Works.
R 38—Rubber & Celluloid Harness Trimming Co.
R 40—Rubber Goods Mfg. Co.
R 42—Rubber Insulated Metals Corp.
R 44—Rubber Products Co.
R 46—Rubberset Co.
R 48—Rubber Step Mfg. Co.
R 50—Rubber Stopple Co.
R 52—Ryan Ideal Stain Blacking Co.

S 2—Safety Insulated Wire & Cable Co.
S 4—Salem Rubber Cement Co.
S 6—Salem Rubber Co.
S 8—Savage Tire Corp.
S 10—Savoie Rubber Co.
S 12—Schacht Rubber Mfg. Co.
S 14—Schavoir Rubber Co.
S 16—Schaw Cone Tire Co.
S 18—Schein, S., & Sons.
S 20—Schmid-Lyon Rubber Co.
S 22—Schwarzwaelder Co.
S 24—Seabury & Johnson.
S 26—Seamless Rubber Co.
S 28—Semple Rubber Co.
S 30—Simplex Wire & Cable Co.
S 32—Smith Canvas Tread Tire Co.
S 34—Soltau, Robert, Co.
S 36—Southern Tire & Rubber Co.
S 37—Sovoie Rubber Co.
S 38—Spalding, A. G., & Bros.
S 40—St. Louis Rubber Cement Co.
S 42—St. Mungo Mfg. Co. of America
S 44—Standard Four Tire Co.
S 46—Standard Rubber & Cable Co.
S 48—Standard Tire & Rubber Co.
S 50—Standard Tire & Rubber Mfg. Co. See Advertisement on Page 339.
S 52—Standard Underground Cable Co.
S 54—Standard Woven Fabric Co.
S 56—Star Rubber Co.
S 58—Steece, Mortimer.
S 60—Sterling Rubber Co., Ltd.
S 62—Stokes, Joseph, Rubber Co.
S 64—Stoughton Rubber Co.
S 66—Stowe & Woodward Co.
S 68—Strong Rubber & Asbestos Mfg. Co.
S 70—Sun Novelty Co.
S 72—Sunset Rubber & Supply Co.
S 74—Sussex Rubber Co.
S 76—Swinehart Tire & Rubber Co.

T 2—Taunton Rubber Co.
T 4—Ten Broeck Tyre Co., Inc.
T 6—Thermoid Rubber Co.
T 8—Tilton Rubber Mfg. Co.
T 10—Toronto Rubber Co., Ltd.
T 12—Transparent Rubber Co.
T 14—Traun Rubber Co
T 16—Tyer Rubber Co.

U 2—U-Glu Supply Corp.
U 4—United & Globe Rubber Mfg. Co.
U 6—United Shoe Machinery Co.
U 8—United States Asbestos Co.
U 10—United States Rubber Co. See Advertisement on Page 335.
U 12—United States Tire Co. See Advertisement on Page 340.

V 2—Vail Rubber Co.
V 4—Van Cleef Bros.
V 6—Victor Balata & Textile Belting Co.
V 8—Victor Rubber Co.
V 10—Viscol Company.
V 12—Voorhees Rubber Mfg. Co.
V 14—Vulcalose Co.
V 16—Vulcan Asbestos Mfg. Co., Inc.
V 18—Vulcan Proofing Co.
V 20—Vulcan Rubber Co.
V 22—Vulcanized Products Co.
V 24—Vulcanized Rubber Co.

W 2—Waitt Cement Co.
W 4—Wales Goodyear Rubber Shoe Co.
W 6—Washburn & Moen Mfg. Co.
W 8—Waterman, L. E., Co.
W10—West American Rubber Co.
W12—Western Electric Co., Inc.
W14—Western Reserve Rubber Co.
W16—Western Rubber Co.
W18—Westinghouse Electric & Mfg. Co.
W20—Whitall-Tatum Co.
W22—White, S. S., Dental Mfg. Co.
W24—Whitehead Bros. Rubber Co.
W26—Williams-Bowman Rubber Co.
W28—Wilson Tire & Rubber Co.
W30—Wire & Cable Co.
W32—Wohlberg, Richard.
W34—Woodward, F. E., & Sons
W36—Woodworth Mfg. Co.
W38—Woonsocket Rubber Co.
W40—Worthington Ball Co.
W42—Woven Steel Hose & Rubber Co.

X 2—Xenia Rubber Mfg. Co.

Y 2—Yatman Rubber Co.

Z 2—Zee Zee Rubber Co.

Rubber Age

PRINTS THE MOST COMPLETE RECORD OF NEWS AND TELLS ALL THE TECHNICAL PROGRESS OF THE RUBBER INDUSTRY

24 Issues a Year for $1.00

THE RUBBER AGE

JULY 25, 1917 VOL. I. NO. 9

INDEX TO CONTENTS

	PAGE
Making Dies for Cutting Rubber Stock	347
Rubber Thread	350
How British Rubber Manufacturers Met War Problems	352
Technical Course in Rubber Manufacture. Section II: Rubber of the Amazon Basin	353
Editorials	357
Information Exchange	358
Recent Rubber Trade Enlistments	358
Chemical Industry Plans Elaborate Exposition	361
War Revenue Bill Still Delayed	362
Many New Buildings for Rubber Companies	362
News of the Rubber Metropolis	363
News of Interest to the Rubber Trade	364
Items for the Tire World	365
American Rubber Patents	366
Market for Manufactured Rubber Goods	367
The Fabric Market	367
Chemicals and Compounding Materials	368
The Crude Rubber Market	369
Scrap Rubber Market	370
Among the Dealers	370

THE GARDNER, MOFFAT COMPANY, Inc., *Publishers*

120 WEST 32D STREET NEW YORK

Room 308-310 Evening Star Building, Washington, D. C.

SUBSCRIPTION PRICE: ONE DOLLAR PER YEAR. SINGLE COPIES TEN CENTS. CANADA: TWO DOLLARS A YEAR. FOREIGN: THREE DOLLARS A YEAR.

COPYRIGHT, 1917, BY THE GARDNER, MOFFAT COMPANY, INC.
ISSUED ON THE TENTH AND TWENTY-FIFTH OF EACH MONTH. FORMS CLOSE FIVE DAYS PREVIOUSLY. ENTERED AS SECOND-CLASS MATTER MARCH 26, 1917, AT THE POST OFFICE AT NEW YORK, N. Y., UNDER THE ACT OF MARCH 3, 1879.

TRENTON N.J., U.S.A. **ESSEX RUBBER COMPANY, Inc.** TRENTON N.J., U.S.A.

"SHED-WET" SOLES
FIBRE-RUBBER SOLES
"ESSEX" RUBBER HEELS

MOLDED SPECIALTIES

Trade Mark

AUTOMOBILE ACCESSORIES

INNER TUBES, CEMENTS, ETC.

MOLDED RUBBER GOODS

PRACTICAL EXECUTIVE

THOROUGHLY capable rubber manufacturing expert, familiar with the use of modern organic accelerators and curing processes, over 20 years' experience in compounding, specification work and superintending, desires position as factory manager with progressive company manufacturing mechanicals, tires, footwear or sundries. Open for engagement after October 1. Address P. E., THE RUBBER AGE, 120 West 32d Street, New York.

THE H. O. CANFIELD CO.

MANUFACTURE

Moulded Specialties, Plumbers' Rubber Goods, Valves, Gaskets; Hose Washers; and Cut Washers of all kinds

Write for prices and samples

Office and Works BRIDGEPORT, CT.

THE SIGNIFICANCE TO YOU OF THE MEMBERSHIP OF

The Rubber Age

IN THE ASSOCIATED BUSINESS PAPERS, INC.

YOU depend upon THE RUBBER AGE for an unbiased and accurate report of all news affecting your business interests.

Probably, too, you give heed to its editorial counsel in many matters of considerable consequence. You have a right, therefore, to know about the policies and principles back of the important service rendered by THE RUBBER AGE.

The membership of this publication in the Associated Business Papers, Inc. (the International Association of Class, Trade and Technical Papers), means that it has achieved an exceptionally high publishing standard, and has subscribed unreservedly to these—

STANDARDS OF PRACTICE OF BUSINESS PAPERS

The publisher of a business paper should dedicate his best efforts to the cause of Business and Social Service, and to this end should pledge himself.

1. To consider, first, the interests of the subscriber.

2. To subscribe to and work for truth and honesty in all departments.

3. To eliminate, in so far as possible, his personal opinions from his news columns, but to be a leader of thought in his editorial columns, and to make his criticisms constructive.

4. To refuse to publish "puffs," free reading notices or paid "write-ups;" to keep his reading columns independent of advertising considerations, and to measure all news by this standard: "Is it real news?"

5. To decline any advertisement which has a tendency to mislead or which does not conform to business integrity.

6. To solicit subscriptions and advertising solely upon the merits of the publication.

7. To supply advertisers with full information regarding character and extent of circulation, including detailed circulation statements, subject to proper and authentic verification.

8. To co-operate with all organizations and individuals engaged in creative advertising work.

9. To avoid unfair competition.

10. To determine what is the highest and largest function of the field which he serves, and then to strive in every legitimate way to promote that function.

If you have read the foregoing standards, there is not much left to be said, except to tell you that these principles are *present day realities* and not merely beautiful ideals for future attainment.

THE ASSOCIATED BUSINESS PAPERS, INC.

The International Association of Trade, Technical and Class Publications

220 WEST 42nd STREET NEW YORK CITY

THE RUBBER AGE

Making Dies for Cutting Rubber Stock

Many rubber articles are stamped out of sheets of stock with cutting dies of various shapes and sizes, just as cookies are cut out of dough. The only material difference between the two lines of work is that rubber is much tougher than dough, and, for manufacturing purposes, has to be cut with greater precision and accuracy than is required in any form of cooking.

The top of a baking powder tin would never do to cut soles, heels and uppers out of thick sheets of rubber and fabric. Special cutting dies of the finest steel and workmanship have to be made for this work.

The making of these dies is the work of skilled blacksmiths, machinists and tool grinders. It is a costly and difficult operation that leaves no room for inferior or careless work. Perfection and accuracy are essential. If a cutting die is not perfect in material and workmanship it will last little or no time; if it is inaccurate in shape it is liable to spoil large quantities of stock. To make the complicated shapes and types of cutting dies used in rubber footwear factories requires many years of experience and training. These dies cost from $2 to $100 and even more. Most of them are made to order on accurate specifications furnished by the customer.

FIG. 1—BENDING STEEL BAR FOR CUTTING DIE

Rough Shaping of Stock

When a rubber mill places an order for cutting dies, it usually furnishes drawings or a paper pattern outlining the cut it wishes to make with the tool.

From the paper pattern, a tin template is carefully cut and filed down to accurate shape and measurements. This serves as a model and guide for all the work of shaping and finishing the dies. The dies themselves as well as their handles if they are to have any, are made of the best grade of tool steel, which comes in the shape of bars. The die proper is made from a single piece of steel stock; handles are made separately and are pinned and brazed to the cutting die.

Once a perfect template is obtained, the first step in making a cutting die is to determine the length of stock required for the work. This is done by measuring the edges of the template with a gauged compass and transferring the measurement to a bar of steel, which is then sawed or cut to length according to the method best suited for its thickness. For sawing a hack-saw is used; a stream of oil constantly being played on the cut during the entire operation. For cutting comparatively thin stock, alligator shears can be used, but in making rubber stock cutting dies, when the hack-saw is not used, the point at which the stock is to be cut is brought to glowing heat in a blow-furnace, and a large cutting chisel is driven into it by a power-hammer, cutting it in two pieces.

Using the tin template, the blacksmiths begin by roughly shaping the stock to follow its contours. By alternate heating, hammering and bending, and frequent use of the tem-

FIG. 2—USING TEMPLATE IN SHAPING DIE

FIG. 3—FORGING OF DIE

plate, the steel bar is gradually worked into a shape which is roughly that of the finished cutting die. Figs. 1, 2 and 3 show some of the shaping and forging processes.

Once the shaping is sufficiently accurate for it to be possible to make it exactly so by grinding, buzzing, filing and polishing, the ends of the shaped bar are forge-welded together, and the whole is cooled off by gradual immersion in cold water.

Grinding

After careful inspection and gauging, the die is turned over to the grinder for rough grinding.

Grinding is one of the most important operations of the making of a cutting die, and on it depends much of the value of the finished product. It is performed on large grindstones revolving at a comparatively high speed. Continuous grinding causes the surface of the stone to become so smooth that it is necessary from time to time to use a special pick-shaped tool to roughen up the grinding surface. The cuts made in the stone by this tool are visible in Fig. 4. The lower part of the grindstones run in a trough of water, so that the grinding surface is always covered with a film of liquid.

The first grinding operation is merely to complete the work of correctly shaping the die, the final grinding, which gives a very sharp cutting edge to the tool, is performed after the die has been tempered.

In Fig. 4, the grinder is putting on this final edge.

Forging Handles

All rubber stock cutting dies do not have to be provided with a handle, which is only necessary when the die is to be used with a mallet; but those which require a handle must get a very strong and substantial one, for in use they are constantly subject to heavy and rough duty.

The handles of the cutting dies made by Hoggson & Pettis, New Ha-

FIG. 4—GRINDING EDGE ON CUTTING DIE

FIG. 5—FORGING A DIE HANDLE

FIG. 6—FITTING HANDLE TO DIE

FIG. 7—FILING EDGES AND BRAZING

ven, Conn., are made of two parts firmly welded and brazed together: a spider, forged in one piece from a solid bar of steel, and a handle proper, which is made from a steel bar turned up on a lathe and brazed into the spider.

The steel bar for making the spider is cut to length with a hack-saw and heated to red heat, when both ends of it are split open with a steel wedge driven into the bar by the power hammer shown in Fig. 5, where it is being used to flatten out and shape the finger flanges of a handle spider.

When the ends of the bar have been split wide open in the manner described, the whole is put back into the forge and heated up again so that by skilled hammering and bending it can gradually be worked into the shape it has in Figs. 5 and 6. Many heatings are required before this degree of perfection is reached.

After the shaping operations, holes are drilled through the center of the spider and the centers of each of its four finger flanges.

The hole drilled in the middle of the spider is the largest, and it is made with a shoulder to receive the handle proper, which is a lathe-turned piece of steel swaged and brazed firmly into the spider, becoming an integral, permanent part of it.

Fastening Handle to Die

When the handle has been forged into perfect shape as shown in Fig. 5, it is made smooth by grinding and filing. The next step is to make it a permanent part of the die.

The fitting of the handle to the die is shown in progress in Fig. 6. Holes have been drilled in the sides of the die to correspond with those in the finger flanges of the handle spider. The handle is placed in correct position on the die, and tapered pins are run through the holes and swaged firmly into place by hammering. Bronze in thin sheets, taken from stamping waste purchased for this purpose and visible in the barrel at the extreme right of Fig. 6, is placed between the sides of the die and the finger flanges of the handle spider; the whole is then packed and banked in a forge, where heat causes the bronze to run and form a tight and firm connection between the die and its handle.

FIG. 8—BUZZING

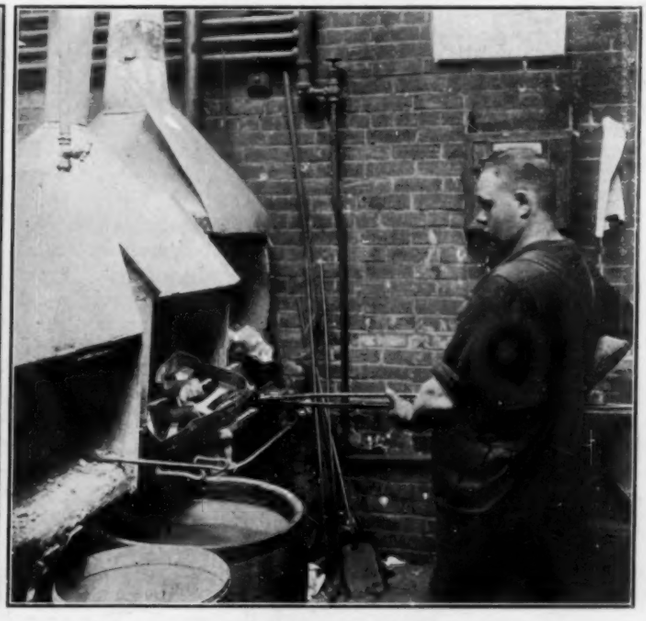


FIG. 9—TEMPERING IN OIL

A die in the process of being brazed in this manner to its handle is shown in the forge in the rear of the department shown in Fig. 6.

Buzzing

After brazing, both the die and its handle are carefully smoothed off; burrs and other roughness being ground off or filed down by hand. The latter process is shown in Fig. 7.

The grindstones, however, cannot work on the inside of the cutting die and filing is a long and difficult process to be resorted to only when strictly necessary. To accurately shape and sharpen the inner surfaces of the die a buzzer is user. This is a small tapered emery tool, attached to the end of a shaft which revolves it at a very high speed.

A skilled machinist, shown at work in Fig. 8, rests the die on his leather apron and brings it in touch with the spinning "buzzer," which quickly wears down, smooths and shapes the corners and the inner surfaces of the cutting die. A suction pipe, also visible in Fig. 8, draws off the emery and steel dust that would be injurious to the workman were he to inhale it throughout long working days.

FIG. 10—POLISHING AND FINISHING

Tempering

After buzzing, filing and another grinding, the die is heated and tempered by dipping in oil.

In Fig. 9 a die has been heated in the blow-forge and is about to be gradually immersed in cold oil contained in a shallow tank next to the forge. It will be noted that both the forge and the tempering tank are provided with funnels and pipes to carry off smoke and fumes that would be injurious to operatives.

Polishing

After being tempered, cutting dies go once more to the filing bench, where all burrs, even those invisible to the naked eye and only detected by the experienced fingers of the machinists, are filed off.

From the filing bench the dies go once more to the grinder, who gives them the strong, keen edge required for cutting rubber stock. They finally come to the polisher, shown at work in Fig. 10, who by the use of rapidly revolving leather buffing wheels gives them the fine, smooth, brilliant surface that is clearly visible in the finished product, several examples of which are shown in Fig. 11.

The photographs for the illustration of the operations described herewith were taken at the plant of Hoggson & Pettis, manufacturers of rubber workers' tools, at New Haven, Conn.

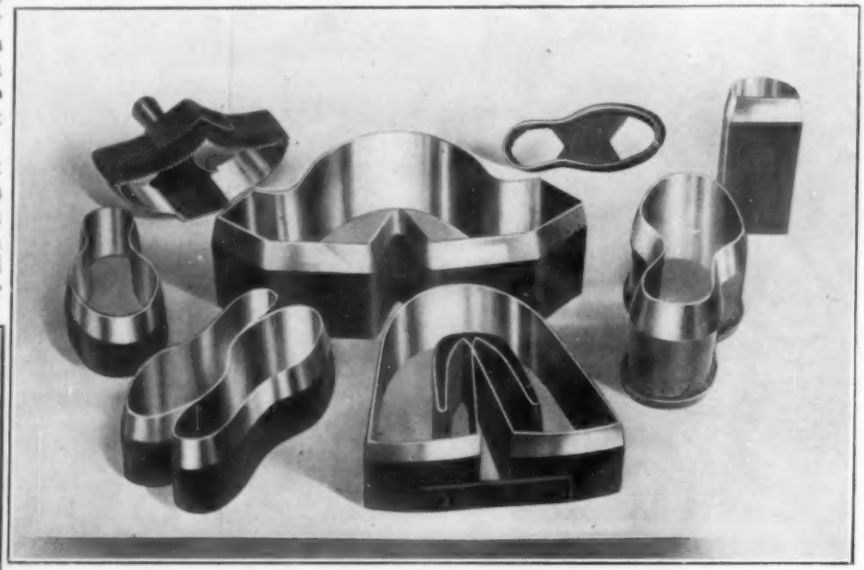


FIG. 11—THE FINISHED DIES

Rubber Thread

By Georges Dumont

Charles Macintosh was first to manufacture rubber thread on an industrial basis. This he produced in his Manchester factory as far back as 1850, and essentially, the principle of manufacture used by him then is in use today. The only material change in the process has been in the use of improved machinery.

The methods of making rubber thread have changed but little since the inception of the industry. That compounds have been modified to reduce cost, is probable, for rubber thread and fabrics woven from them, are far from having the wearing qualities of such thread and fabrics manufactured twenty or thirty years ago. Gray sulphur blooming thread has given way to black and red threads which are not as lasting as the former because they oxidize sooner. This more rapid oxidization is probably due to the absence of free sulphur in all but gray threads.

Rubber threads may be produced in different ways without there being great differences in their properties, but their elasticity and toughness depend largely on the raw materials used. Only the best qualities of crude rubber are suitable for making rubber thread. Bolivian Para is considered best, and its superiority is probably due to the fact that it is collected from large, old trees, growing under ideal conditions, and the rubber has plenty of time to "ripen" during its long trip to the factory.

When new, a rubber thread should stretch seven times its normal length without tearing and a thread will not do this unless made of selected rubber, suitably worked and properly vulcanized.

The numbers by which rubber threads are designated refer to the number of threads, laid one on top of the other, that would be required to build up a height of one inch. Thus, a No. 34 thread is 1/34 in. thick. The most usual sizes are No. 38 and 40. The threads used for making golf ball cores are wider than their thickness and are specially made for this purpose.

Great care has to be exercised in choosing crude rubber for making

thread as uniformity of quality is essential. Methods of manufacture vary; round threads are usually made on special forcing machines while other forms are cut from sheets of rubber or from rubber tubing.

Processes for making these sheets vary and have much to do with the quality of thread produced. One process, used for producing sheets from which the highest quality of thread is cut, is briefly as follows:

The carefully selected rubber is softened by soaking in boiling water in a special tank containing steam coils. It is then washed with care to prevent injuring its " nerve " and is placed between the smooth platens of a powerful press in which it is subjected to great pressure for several weeks, the press being tightened from time to time. It is usual to have these presses in a room that is made cold by artificial means. Some factories use presses provided with refrigerating coils. Low temperatures make the rubber more compact and consequently improve its texture.

The rubber comes from the presses in sheets that are perfectly smooth and of uniform thickness. They then go direct to the cutting machine. This process is long and costly and is only used where perfect thread of great elasticity and toughness is required.

A more common method is sheet the rubber stock by running it slowly through a large calender. Instead of powdering the sheets thus produced with talc in the usual way, it is customary in thread factories to brush them with a dilute solution of water and soap. This solution must be very clean and pure so that when the water has evaporated the soap forms a thin film on the surface of the rubber sheet which prevents it from sticking together when wound.

Cutting Sheets Into Threads

The simplest method for cutting sheets of rubber stock into threads consists in running the sheets between two steel rolls, in the circumference of which are grooves spaced at intervals as broad as the threads to be cut and so arranged that the grooves of the upper roll match and cover those of the lower one. The sheet of rubber passing between these rolls is cut into threads which are wound on reels. The dividing of the rubber sheet into threads by this machine should be described as crushing rather than cutting, and if the threads are to be cut smooth, it is necessary that the edges of the grooves be extremely sharp and perfectly adjusted to meet one another.

More complicated, but better, is a thread cutting machine consisting of a horizontal shaft on which sharp circular knives are arranged and spaced according to the widths of the threads to be cut. The knives slightly engage in the grooves of a roll which runs directly above them. A pair of smooth feeder rolls grasps the sheet and forces it through between the grooved roll and the knives which are sprinkled with water, revolve at great speed, and cut the sheet into threads that are then passed through glass rods and wound upon reels.

Another type of cutting machine, used for cutting cold pressed sheets, consists of a shaft upon which the rubber sheet is firmly attached by means of sharp points. This shaft revolves and at the same time moves forward against a knife which is given a quick to and fro motion. The thickness of the bands cut in this way varies with the speed at which the rubber sheet is brought against the knife. A stream of water plays steadily upon the knife to prevent the rubber from sticking to it and to facilitate cutting. The long band of rubber obtained by this process is next cut into square cords.

Cutting Square Cords

Although threads cut directly from the raw material are toughest, their use is limited to certain purposes as they cannot be obtained in great lengths and have the further disadvantage of not being vulcanized. For making long rubber threads or threads of vulcanized rubber prepared rubber is used. The rubber is first vulcanized, then cut.

Threads either of " green " or of vulcanized rubber are now generally prepared from tubing which is divided by a spiral cut. The tubing to be cut is fastened upon a wooden mandrel which fits exactly in the bore of the tube. The mandrel, together with the tube is placed in a lathe in which a screw gradually moves it forward. A knife, moving rapidly to and fro, cuts a spiral strip from the tube, the width of the strip depending on the pitch of the screw thread. Rectangular threads are obtained by using a screw with threads of less pitch than the thickness of the walls of the tubing.

In recent years machines have been perfected to cut any desired thickness of rubber thread without having to use more than one feeding screw.

Once the thread is cut it is wound on reels, great care being taken to prevent the freshly cut surfaces from sticking together.

For certain purposes round rubber threads are required. They are not cut but are made from rubber worked into a plastic mass by treatment with suitable solvents such as carbon disulphide and alcohol which are allowed to swell the rubber but not to dissolve it.

This plastic mass is forced through the holes of the die plate of a forcing machine from which it extrudes like cold cream pressed out of a collapsible tube. The threads thus formed run onto an endless band of cotton velvet about 15 feet long which carries them along. While the threads are on this band a considerable portion of the solvent evaporates and the threads acquire a certain degree of solidity before passing on to a second endless band conveyor made of wire gauze. This band of wire gauze is shaken by a special mechanism while fine powdered talc is dusted on to the rubber threads. The shaking motion causes the threads to be coated with talc on all of their surfaces. This prevents them from sticking to one another.

To complete the evaporation of the solvent some factories run the threads back and forth over the endless bands of a system of conveyors. The time it takes for the thread to go over this system is sufficient to allow all traces of solvent to evaporate. In this case no shaking powdering table is needed and the thread can be wound on reels without talc.

Threads made in long lengths need not necessarily be cured, but when vulcanization is required it can be performed by either the vapor or the heat process.

Rubber threads are wound in the same manner as the loose cotton bands in cotton mills. Funnels stand over vertical tin boxes, all of which revolve around their axis at a same speed. The thread glides through the funnels into the boxes and is wound spirally inside of them.

Special Numbers

If threads of specific diameter are to be made, account has to be taken of the fact that rubber thread shrinks considerably in drying. A thread forced through a die having a diameter of 0.040-inch, when dry will have a diameter of about 0.039-inch.

Threads of less than 0.038-inch cannot be made with a forcing machine. If die holes of a smaller diameter than 0.039-inch are used the plastic mass breaks constantly and work becomes difficult and costly.

To make rubber thread finer than 0.038, advantage is taken of a peculiar physical characteristic of rubber. If a thread of rubber is stretched lengthwise and simultaneously exposed to a temperature of 239° F., it will retain the length to which it has been stretched. even after the tension ceases. If thread which has been dried in this manner is drawn again lengthwise, and again heated to 239° F., it remains stretched. and by repeating this operation threads of a smaller diameter can be made.

How British Rubber Manufacturers Met War Problems

By William M. Milner

War brings with it many problems that the manufacturer is forced to solve, and it may not be amiss for American rubber manufacturers to become acquainted with the manner in which these problems were and are being handled by the British rubber manufacturers. While conditions in England are quite different from those here, suggestions of value to our manufacturers may be obtained from the experiences of those across the water.

Credit

America, from a financial point of view, was well prepared for the war and the credit problem which was the first to confront British rubber manufacturers is not likely to become a serious difficulty here.

Labor Problem

The problem now facing American rubber manufacturers is the loss of many employes through enlistment. In Great Britain it was found that they could, to a large extent, supplant the skilled workman by the unskilled, and the latter by women. This did not apply, however, in the highly skilled types of labor and in the foreman class.

It was found that women work with greater zeal than men, probably because they were free from the hindrance of labor traditions, and, consequently, ambitious to make as much money as possible. The war has shown that women have a capacity for industrial work that they were never before credited with possessing and British rubber manufacturers believe that if they started to train women when they were quite young, as is done with boy apprentices, they could do an immense amount of work in the rubber factories that has been reserved to men, as well as the simpler duties they now perform.

The employment of women in England has been found to greatly increase the productive capacity of rubber mills, apart from any shortage of male workers, by leaving men more free for the work they must perform. The appearance of women in well-paid and fairly skilled labor has been found to act as a stimulant for men, and makes them ambitious to do work which they would otherwise regard as beyond their abilities. They want to do better than the women and win promotion.

British rubber factories at first had difficulty in finding superintendents, chemists and other specialists to take the place of those who went to the front, but they all have now managed to find men capable of being worked into these positions. This discovery has led most of them to appoint understudies or "subs" for each employe's place, so that there will be available an ample supply of trained men.

Buying

Another problem which caused much trouble to British rubber men in the early days of the war was that of buying. Theoretically it was believed wise to buy large stocks, to provide for possible shortage. But it was found that where the government took possession of manufacturing establishments, as was the case with most rubber factories, it used up the stocks provided through the foresight of the manufacturers very quickly, simply allowing the prices paid for them, regardless of how much their value may have increased in the meantime.

The British Parliament in many cases limited profits by taxation and thus destroyed the marked advantage of buying cheap to sell in the higher market. In some instances, however, where the government made use of stocks of cheap materials purchased before the war for contracts undertaken at that time for private individuals, it has been understood that, when the contracts are completed, the manufacturers will be reimbursed for the loss they suffered through filling a pre-war contract on material purchased at war prices. The same applies to pre-war contracts which were taken at low prices, and the execution of which has been suspended during the war, owing to government interference.

National Obligations and Personal Interests

Another difficult problem that has confronted and still affects British rubber manufacturers is the squaring of national obligations with their personal interests. Some rubber factories, like plants engaged in other lines of manufacture, have been practically monopolized by the government for the production of war-materials of kinds they had never before made. These manufacturers have practically lost their former trade and at the end of the war will find themselves stranded without an order and will encounter difficulties in returning to the making and the selling of their original products. The only resource such concerns will have is good will which they are fostering and maintaining, to the best of their ability, by extensive and sustained advertising in trade journals.

Changing Products

The problem of switching from one product to another with a minimum of loss is also one which has been food for much thought and effort on the part of manufacturers in Great Britain. Some industries are less adaptable, less flexible than others.

The rubber industry is particularly of the rigid type, and comparatively little success has been achieved in diverting rubber factories to entirely different lines of manufacture. This, however, does not mean that it has been found impossible to change the nature of the output of rubber factories. Most all rubber manufacturers in Britain are turning out goods they never attempted to touch before the war. Tire valve plants have been easily set to making shells and shell fuses; tire makers have become proofers and manufacturers of druggists' sundries, so have mechanical goods people. Of course, this was not accomplished without trouble. Most all rubber factories are contributing to the flying services by making airplanes and balloons or at least parts of both.

Dependents of Enlisted Men

No small problem has been that of dealing with the maintenance of relatives of employes serving with the forces. Most British rubber manufacturers have given to the wives of enlisted men certain weekly amounts which, with the separation allowances provided by the government, bring the wives' weekly incomes nearly up to their former level. Rubber factories have guaranteed to men joining the army or navy that their positions will be open for them on their return.

British rubber manufacturers have learned, at great cost, that it is the duty of the government, that is of the taxpayer, and not of the employer, to provide temporary pensions to the dependents of enlisted employes.

When the war broke out the manufacturers did not expect that it would last so long, and wishing to be generous in financing their men joining the forces made allowances to dependents. They have in most cases found their resources severely taxed by this drain. Today, all believe that temporary pensions, military hospitals, and other war charities should properly be a part of the military organization of the nation and should not be left to the generosity of private individuals.

The war has increased largely the production of all British manufacturers and the growth in the output of the rubber industry has been large.

Technical Course in Rubber Manufacture*

By H. E. Simmons, B.S., M.S.

Professor of Chemistry in the Municipal University of Akron

Copyright, 1917, by The Gardner, Moffat Co., Inc.

SECTION II

Rubber of the Amazon Basin

As stated in Section I of the Course, the French were the pioneers in obtaining exact information in regard to the South America rubbers. It was the expedition of de La Condamine and Bougner, from the Paris Academy of Science, in 1731, that sent the first reports dealing with rubber in Peru and Brazil back to the Eastern World.

In 1736 de La Condamine sent home samples of rubber, and referred to the fact that in the province of the Esmeraldas there occurred a tree called by the natives *Hevea*, and that they obtained from it a milk white liquid, which gradually hardened and blackened in the air. He also mentioned that in the province of Quito the natives coated linen with this material, and that the same tree grew on the banks of the Amazon; also that the natives made water tight boots from it, which had the real appearance of leather, after having been blackened by means of a smoke. He goes further and says that the natives made some moulded goods from this material. From his writings we find several of the terms still in use.

I mention this simply to give a little idea as to the length of time civilized man has been acquainted with this important substance, and in what condition and state of development he found it.

Little Rubber Territory Explored

In the beginning it is well to define a few of the terms which will be used and describe briefly the labor condition which prevails throughout nearly all of the South America rubber regions.

Thus far very little of the vast territory bearing these rubber producing trees has been even explored, to say nothing of being available for tapping. It is estimated that there are at present 300,000,000 virgin trees in this territory.

Tracts of this rubber producing region are obtained by individuals or companies on lease from the state, and the working of any area which has not been surveyed by the state is punishable under the law of theft. The number of leases and sub-leases is considerable. From the report of the Commission of Economic Expansion in Brazil during the year 1906-

07 there were organized fifty-two such companies with a capital of two millions sterling. These concessions are termed *seringals*, and are usually computed according to the number of *estradas* running through them. The *estradas* are paths running through the forest in such a way as to lead past from one hundred to one hundred and fifty trees. Sometimes the trees are some distance apart, but generally are found in groups of from two to six.

The *seringueiro* is the name applied to the one taking care of a *seringal*. The *seringueiros* are mostly natives of the states of Ceara and Maranhao. Due to the high death rate and the great number of desertions, it is necessary to provide about eighty laborers for a *seringal* on which fifty could actually do the work. One *seringueiro* is supposed to take care of two *estradas* after they are opened up and put into operation.

The cost of financing a *seringal* is rather high, as Sandmann has estimated it costs about $25,000 to put into operation a *seringal* of one hundred *estradas*, that is, from 10,000 to 15,000 trees. This will buy the outfit necessary, cut the paths, build the huts and factory, and also allow for a little incidental expense.

The *patrao*, the owner or sub-owner of a *seringal*, very seldom finances his own property. He obtains the advances from the large dealers and export firms at Para and Manaos. They are termed *aviadores*. Thus it will be seen that the financing is really done by the *aviadores*, and they hold a mortgage on the *patrao*, who in turn mortgages the labor of the *seringueiro*.

The average yield of a six months' season of an industrious *seringueiro* is about eight hundred pounds of rubber. When he has paid his advances to the *patrao* there remains a profit of about $250 to $300. This is hardly sufficient to support his family at the seat of operations during his absence on the *seringal*. It is fortunate for him that the streams and forest furnish fishing and hunting almost sufficient to support him, but because of the poor way in which the food is prepared and the unhealthy climatic conditions, there results a high mortality and much sickness. The occupation of a *seringueiro* is not an enviable one.

RUBBER GATHERERS DRESSED FOR A HOLIDAY

*This course commenced in the July 10, 1917, issue of THE RUBBER AGE and will be complete in 27 issues

In the Amazon Basin we find the order of *Euphorbiaceae*, the most important genus of which is the *Hevea*, and here we find many different species. The most important one being the *Hevea brasiliensis*, the species from which the widely known Para rubber is obtained. This species is found over a large part of northern South America but principally in the areas watered by the Amazon and its tributaries, in the states of Para, Amazonas, in Brizil. It is the species

TAPPING WILD RUBBER TREES

from which the Eastern plantations have been largely propagated. It is a large tree, in its natural state often attaining a height of one hundred feet and a diameter of forty inches.

There are several varieties obtained from the *Hevea brasiliensis*. We find two main regions in which Fine Para is prepared. The "Islands" at the mouth of the Amazon River; and the "Up-river" regions near and above Manaos. "Islands" rubber is generally known as "soft-cure," and "Up-river" as "hard-cure."

The scraps of rubber adhering to the bark of the trees and coagulating cups are compressed into irregular forms and sold as "Negroheads." "Up-river Negroheads" are generally called "scrappy" and "Islands Negroheads" are called "Sernamby." There is another variety of negrohead, the Cameta, coming from a district of that name in Southwest Para.

This same species supplies from the Province of Matto-Grosso, in Brazil: the Matto-Grosso, Fine and Entrefine; Matto-Grosso, Virgin Sheets, and Matto-Grosso, Negroheads.

From Bolivia we obtain Bolivian, fine, medium and coarse; also Mollendo, fine, medium and coarse. These are also obtained from a species of *Hevea*.

From Peru we get Peruvian (fine, coarse or scrappy), likewise of the *Hevea*.

From Ecuador we obtain a new species, the *Sapium*. Several varieties of which are: Ecuador scrap, sausage; Esmeralda sausage, Caucho blanco, and Caucho negro.

Confused with these last two we often come in contact with a variety known as Caucho Balls which is of the *Hevea brasiliensis*.

During the last quarter of a century large quantities of Caucho have been found in the districts of Obidos, Tocantins, Xingo, and Tapajos rivers. This supply is likely to be exhausted due to the fact that the natives gather this latex by cutting down the tree and then bleeding it.

There are some seventy varieties of the *Manihot* rubber but we shall call attention to but two, the Ceará and Maniçoba which grow in a relatively poor soil and at altitudes where most other rubber producing trees cease to exist. The bulk of these rubbers come from the Province of Ceara, Brazil. There is some difficulty in collecting this latex due to its rapid coagulation.

The natives allow the latex to coagulate as it flows down the tree and then peel it from the bark. It sometimes runs down onto the ground and is caught in a leaf formed as a receptacle. The result is that the Maniçoba rubber varies a great deal and contains a large amount of foreign matter. When this rubber is properly prepared, however, it is of a very good grade.

The Micandras occur on the upper Amazon and some are of the opinion that it is used largely in the making of Scrappy Negroheads.

A rubber of the species *Hancornia*

SMOKING CAOUTCHOUC

is also found in Brazil and is sold under the name of Matto-Grosso Sheets, Mangabeira, or Pernambuco. It is of medium value and rather large quantities of it are used.

The above enumeration does not include all of the varieties of rubber from South America but it does cover the most important ones.

Two Methods of Tapping

Rubber is obtained from these trees, for all of the South America rubber comes from trees, by a system

NATIVE COLLECTING THE LATEX

of tapping of one kind or other, in this we shall consider two general methods.

1. Felling of trees.
2. Bleeding by puncture or incision, tapping.

By the felling process they are able to obtain just the latex which is in the tree at the time of its cutting. The method is a destructive one and is only practiced now under two conditions.

The trees found in Peru, when once tapped are attacked by insects and the death of the tree results, while if this tree is cut down there springs up from its stump several sprouts which grow very rapidly and in a short time a clump of trees exists where there was but one originally. In the second place felling is allowed where it is necessary to thin out the forests in order to make the *estradas*.

Several different methods of tapping are in use here. The *Arrocho* system was one of the first ways to be used in Brazil, and was accomplished by binding a rope obliquely about the *Hevea*, the knot being high up on the tree. Above the ligature, incisions were made with any sort of tool the operator happened to have, a butch-

er's knife, pruning hook, or cutlass, and it mattered not whether the incision was too deep and thus impaired the life of the tree, and got injurious material into the latex, or too shallow and thus obtain a poor yield of latex. It was all the same to the *seringueiro.*

From these incisions the latex flows down the tree until it comes to the rope and then on down the groove which the tree forms with the rope until it reaches the lowest point where it is collected in a suitable receptacle. The latex making this journey down the tree collects—moss, wooden debris and other impurities and these are all later found in the rubber. In addition to these objections the *seringueiro* would often neglect to remove the rope and the tree would die of strangulation. This process has been practically abandoned.

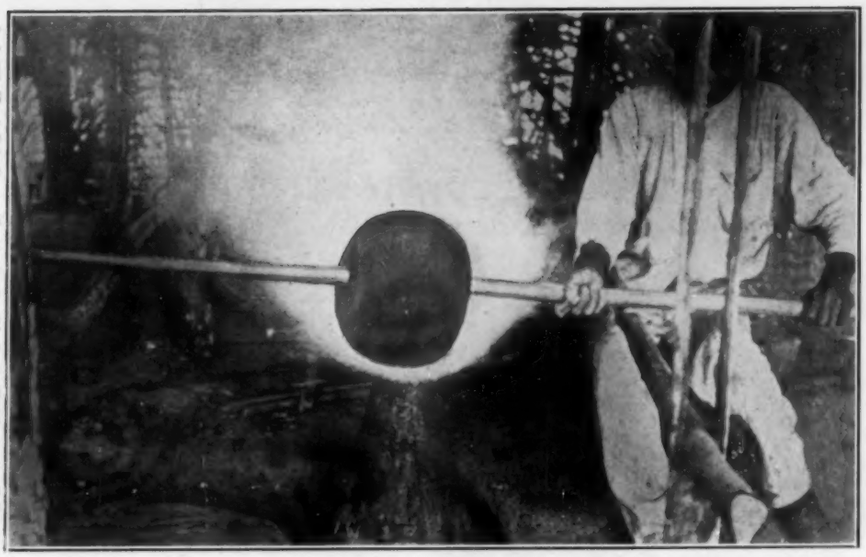
The present method of tapping in this region has been described by a great many different writers. Chapel and Carrey have probably given the best description. The *seringueiro* gets his outfit all together which consists of a *machado,* a small hatchet with a short handle and the blade of which is only 3 centimeters wide, with a sharp cutting edge of about 5 centimeters, the bucket for carrying the latex, and the *tigelinhas,* small cups which are hung at the different incisions.

With this equipment the *seringueiro* starts out about five o'clock in the morning to operate on his *estrada;* this is planned in such a way that it begins at his hut and after its ramifications leads back to his hut again. He takes with him his *machado* and *tigelinhas.* When he comes to a tree he cleans away the rubbish at its foot, cleans the bark, and then begins to tap the tree. With a single cut of the *machado* he incises the bark, being careful not to wound the tree, so that the latex flows out. After several incisions of this kind are made in each tree, he places a *tigelinhas* under each one to collect the latex and then moves on and repeats the operation on the next tree.

Some of the collectors make V-shaped incisions and others make vertical ones. Whatever method is used should be practiced regularly on the tree for it has been found that by using irregular tappings the tree will yield regularly but for a year or two and will then dry up and cease to give any latex.

Taps Fifty Trees a Day

A *seringueiro* is able to operate about fifty trees a day so if his *estrada* contains one hundred and fifty trees he divides it in such a way that each tree is tapped every third day. If his *estrada* contains one hundred, then each tree is tapped every other day. After he has tapped his fifty trees he comes into his hut for a little rest and a cup of coffee.



METHOD OF SMOKING RUBBER

This has consumed about three hours and he now takes up his *balde,* or tin bucket, and revisits the trees which he has tapped, pouring the latex from each *tigelinhas* into his gathering bucket and turning the *tigelinhas* upside down on a stick near the foot of the tree. This is done to prevent its being filled with water and collecting impurities, as it rains every day during this season of the year.

The period of collecting latex is from the later part of August to the first of January. After all of the latex is gathered he returns to his hut and the remainder of the day is spent preparing the rubber from this run.

Several references have been made to the term latex, assuming that the reader understands this to be the liquid which exudes from the tree containing the rubber, but is not the sap of the tree. It may be thought of as analogous to the milk of mammals, which it is often called, and the rubber corresponds to the butter fat, and of course must be separated out. The process of obtaining the rubber from the latex is called coagulation.

The workman starts a fire in his *fumiero,* a kind of furnace surmounted by a short conical pipe which will deliver the fumes so that they do not spread too far afield. He then fills his *fumiero* with the fuel which has been carefully selected and ignites it. The best fuel for this purpose is the nuts of the *urucuri.* Some wood is mixed with these to keep them burning, and also to conserve the supply.

As soon as the smoke is given off abundantly the *cauchero* takes a paddle and holds this in the smoke from his *fumiero* until it is covered with a layer of carbon. This is done to prevent the rubber from sticking to it. He then dips the paddle into the latex at his side, allows it to drain, then holds it in the dense smoke until it assumes a yellow tinge.

The rubber is coagulated almost immediately and the mother liquor exudes and is evaporated by the heat of the *fumiero.* When this is done, the first layer is complete and he again dips the paddle into the latex and repeats the same process, thus building up a biscuit of rubber with one thin layer upon another and each one coagulated separately.

When this biscuit has attained a weight of ten or eleven pounds he frees it from the paddle by cutting it down in the direction of its axis and is now ready to begin over. These biscuits are still moist and to dry them, he places them in the sun for several days. They are then ready for the market under the name of Para Fine. The size and shape of these biscuits varies considerably in accordance with the way they are made.

The *cauchero* often takes a pole about seven feet long and supports this over his fire by placing one end in a loop suspended from the roof of his hut and holds the other end in his left hand, with which he keeps it turning continually, while with the other hand he pours a small amount of latex over the pole which is in the smoke. By this method the same grade of rubber is produced but in larger biscuits, averaging about forty or fifty pounds. This is the method of coagulating the latex of all of the Paras, and it is undoubtedly the virtues of this process which has given the Para its enviable position in the rubber trade.

There are two reasons at least why this is true; first, the smoke has a large amount of carbon in it and we know this substance to possess energetic antiseptic properties; second, in the products of distillation of the *uricuri* nuts there is a considerable amount of creosote which also possesses the same property. Therefore we have a double protection against fermentation and decomposition of nitrogenous matter in rubber coagulated by this method.

The Manihot latex is coagulated by natural heat. As was stated before the *seringueiro* obtains the Ceará and Maniçoba by tapping the tree with long gashes as high up on the tree as he can reach. The latex is very thick and coagulates before it ever comes to the ground. He allows it to remain two or three days or until it is dry, when he detaches it and either rolls it up into a ball or folds it back and forth upon itself. Without further treatment it comes into the market as Ceara Scraps.

BALL OF RUBBER AFTER SMOKING

There are three grades of this rubber; the first quality is a blonde rubber which is collected at the beginning of the season; the second quality is darker in color, and is collected later on when the rains have begun to fall; the third quality is that which is collected at the foot of the trees and is full of earthy material, often suffering a loss of 50 per cent. This rubber always gives off a strong smell due to the careless treatment in its collection. Naturally this is a higher grade latex than that from the *Hevea*, and it is a pity that more care is not exercised in its preparation.

A chemical means of coagulation was proposed by Strauss for use with the *Hancornia* latex. It consisted in pouring into the latex a solution of potassium alum when coagulation took place immediately. The rubber was then allowed to drain for about eight days, then divided into small pieces and sun-dried for a month when it was ready for market.

Due to the rapid coagulation, we find enclosed latex all through the rubber which not only constitutes loss but which further ferments and produces a bad odor; we also find pockets filled with the alum solution which has a very injurious effect upon the rubber. As a result this rubber goes wrong with age, and it often has a loss of as high as 60 per cent. There are three grades of Mangabeira, and the one possessing a red color sells at a premium.

Smoking Method the Best

This alum process has been displaced in certain regions by sulphuric acid, but this does not remedy the objections already mentioned, and of course it has no antiseptic property. To correct this, a solution of common salt has been used but it leaves too large a quantity of water in the rubber. A soap solution has been used but this, in addition to having the same objections, acts very slowly.

The juices of some plants and climbers have also been employed, but the difficulty of obtaining these and the fact that they introduce more resins into the rubber has resulted in their condemnation.

The above comprise the more important methods of coagulation which are in use or have been used in South America. The best one being the smoking, and it is worthy of mention in this connection that this is the method which de La Condamine found the natives using in 1731.

One thing which consumers of rubber are very anxious to have is uniformity, and there are several factors which may enter into the obtaining of this.

First, if the trees have been improperly tapped, that is if the *seringueiro* has cut too deep and pierced the cambium, some of the sap of the tree will enter the latex and it impairs the rubber, making it tacky.

Second, when in gathering they mix the latex of one species with that of another or even that of a tree that is too young.

Third, carelessness in gathering and coagulating. The most uniform varieties therefore are the *Hevea* and *Manihot*.

The following table gives some idea as to the relative loss in washing:

Fine Para (hard or soft)	12 to 20 per cent
Negroheads	20 to 40 per cent
Maniçoba	28 to 30 per cent
Matto Grosso	15 to 30 per cent
Mangabeiro	30 to 35 per cent

To give some notion as to the progress made in the production of rubber from South America, the following facts are interesting:

In 1825, less than 30 tons of rubber were exported; in 1830 there were 156 tons; in 1840, 388 tons; in 1850, 1,467 tons; in 1860, 2,670 tons; and in 1897, Brazil alone produced 21,260 tons.

From 1909 to 1913, the yearly average was between 39,000 and 40,000 tons. The May, 1917, issue of the "World's Rubber Position" gives the following estimate of the world's production of rubber in 1916:

Plantation	152,650 tons
Brazilian	36,500 tons
Other sources	12,448 tons

To show the ratio of plantation to Brazilian for several years the following data is significant:

	1910	1911	1912	1913	1914	1915	1916
Plantation (tons)	8,200	14,419	28,518	47,618	71,380	107,867	152,650
Brazilian (tons)	40,800	39,730	42,410	39,370	37,000	37,220	36,500

Rubberized Sharks Prove Harmless

Copyright, International Film Service.

The absence this summer of the man-eating sharks which proved so fashionable along the Atlantic coast last year has resulted in the introduction of a substitute variety, considerably less ferocious than the real thing.

President
Lester D. Gardner

THE RUBBER AGE

Editor
Herbert M. Williams

Vol. I | July 25, 1917 | No. 9

THE cordial reception that the rubber industry has given to the Technical Course in Rubber Manufacture which is published serially in The Rubber Age is most gratifying. As there had never been published a comprehensive presentation of all phases of modern American rubber manufacture, its need was evident. The practical demonstration came with the publication of the first part of the Course, when over a thousand subscriptions came in from all parts of the country and from practically every rubber company.

Usually the building of a representative circulation is a slow and tedious process, but The Rubber Age has, by giving the rubber industry the timely information that it requires, become a necessity to all interested in the developments relating to rubber.

With these new subscribers, The Rubber Age has now the largest paid circulation, the largest newstand sale and distributes the largest number of sample copies of any rubber publication in this country. The policy of frankness and cooperation which characterizes this publication extends to its circulation department. Any one interested may have access to its circulation files.

The growth of The Rubber Age has been phenomenal and it is with a spirit of gratitude that the publisher makes this acknowledgment to its readers.

Commercial Economy

The voluntary assistance of every business man has been requested by the Commercial Economy Board of the Council of National Defense to save lost motion in business during the war, with the object of releasing men and material for war purposes. Progress has already been made along this line.

In accordance with the suggestion of the Board, bakers have generally discontinued the custom of receiving return of bread from retailers. Dry goods and department stores are planning to curtail the return privilege, which has been abused to the extent of customers returning from fifteen to twenty per cent of all goods sold, and attention is being given to arranging delivery systems in many lines of business so as to reduce the number of deliveries made, to encourage patrons to carry packages home and to eliminate by cooperation duplicate delivery service as much as possible.

There is also a movement on foot to reduce the number of styles and of simplifying them for the season of 1918. It is appreciated that a gradual readjustment will accomplish enormous saving, produce no hardship and render free more money and more men for the country's needs.

In this movement there is an opportunity for full cooperation in the rubber industry. There are many lines made in every prominent factory to meet a small demand; other articles are made to meet some competitor's goods. Usually lines of this character are unprofitable and are generally considered to be of more trouble than they are worth. Economy in labor can be gained by discontinuing such lines and making only the "best sellers."

The elimination of special brands for jobbers and large retailers is another way in which manufacturing economy can be furthered. In the sales force effort can be saved by eliminating branches and road men where the most severe competition is suffered. Such economies in the factory and in the selling department would also mean economies in office detail work.

The time may not be far off when it may be necessary to resort to some such method either because a scarcity of men will force curtailment or because the country's need will require some such economy as has been outlined in order to provide men for military effort.

Profiting by Experience of Others

"May I respectfully suggest that it is worth a good deal to study our blunders so as to begin where we now are, not where we were three years ago?"—David Lloyd George.

The Rubber Age is fortunate in placing before the American rubber trade the methods and plans that were used by British rubber manufacturers in solving problems that were forced upon them by the war. This information appears elsewhere in this issue.

While the American war problems are different in certain particulars from those of British manufacturers, American factories may be benefited by the experience of those who have gone through trying times, which are probably similar to those that are bound to come to us.

It was formerly said that experience is the great teacher but it should now be noted that the rapid advancement in science and in manufacture would not have been possible had not trained men benefited by the experience of others.

In the organizations of the principal rubber factories operating under the best scientific and engineering direction due consideration has been given the experience of others in forming their wartime policy. In doing this they will suffer less from war conditions than if they had attempted to pass through the period of adjustment without the benefit of the knowledge and experience for which others have been compelled to pay dearly.

The labor condition resulting from the war in Britain will likely be duplicated here to some extent at least and rubber manufacturers should fortify themselves against the future.

Information Exchange

In this Department are printed inquiries of a technical or commercial nature that are received by THE RUBBER AGE. *Readers are invited to send helpful replies to the questions asked, so that they can be printed in this Department.*

An Information Exchange Is Wanted

Inquiry from B. T. & R. Co., Cal.—The writer of this was for several years on the editorial force of a drug and chemical trade paper in New York City and we ran an "Inquiry" or "Question Box" department which proved immensely popular. Since getting into the rubber business I have been unable to find any publication which occupied a similar position in this particular respect and had thought of writing you on the subject. It seems strange to me that the rubber industry, especially compounding, should be shrouded in so much secrecy, a situation which renders the rubber manufacturer who is just beginning liable to become the victim of unscrupulous "experts" who have formulas for sale. Cannot THE RUBBER AGE maintain a page or two for solving the problems and answering the questions of the little vulcanizer and tire repairer and give ideas to those who wish to do a little compounding? The tire repairing trade is now sufficiently large to cut some figure in the market for repair stocks, etc., and I can see no reason why this attractive department should not be added to your publication.

Reply.—Your suggestion is an excellent one and is in line with our policy of making THE RUBBER AGE of the greatest value to the entire industry. We shall be pleased to receive any queries from you or any other of our readers who desire information on technical or commercial subjects, and believe that our readers will co-operate in answering such questions through the INFORMATION EXCHANGE.—EDITOR.

Rubber Offset Blankets Wanted

Inquiry from A. D. C., Paris, France—We have large orders and import permits signed by the French Ministry of War for high-grade rubber coated blankets, such as are used for lithographic offset press work, which we wish to place with a reliable American manufacturer of these goods. We want 5 x 5-inch samples and quotations for large quantities. We will deposit 50 per cent with order and pay balance on shipment of merchandise.

Comparing Costs of Different Stocks

Inquiry from P. E. Y., New York.—I have read with interest C. S. Redfield's article on "The Application of Volume Cost to the Rubber Sole Industry," and wish to offer the following as another method of arriving at the results desired.

Determine the weight in ounces of an article at any gravity. Multiply this weight by .0625 and divide by its gravity. Call this C, or the volume constant for the mold. For any stock multiply the cost per pound by its gravity and call this K (equals the cost of stock to occupy the same amount of space as one pound of water will supply).

I. Weight per article in pounds equals $C \times$ its gravity.

II. Cost per article equals $K \times C$.

I believe that the best method of comparing the relative costs of different stocks is by comparing their K's.

Recent Rubber Trade Enlistments For War Service

NAME	EMPLOYER	BRANCH OF SERVICE
A. Belleveau	Acushnet Process Co.	Battery D, 2nd Regiment, Mass., National Guard Field Artillery
J. Dansereau	"	Fort Slocum, N. Y.
A. Millette	"	Fort Ethan Allen, Vt.
J. Reindeau	"	Battery D, 2nd Regiment, Mass., National Guard Field Artillery
F. Silvia	"	Battery D, 2nd Regiment, Mass., National Guard Field Artillery
H. S. Spooner	"	Battery D, 2nd Regiment, Mass., National Guard Field Artillery
A. Bloomer	Batavia Rubber Co.	3rd Artillery, N. G. N. Y.
J. Cocco	"	3rd Artillery, N. G. N. Y.
S. Foster	"	74th Regiment, N. G. N. Y.
Walter Gavriel	"	"
L. Hayes	"	3rd Artillery, N. G. N. Y.
F. Hollenbeck	"	74th Regiment, N. G. N. Y.
E. Merrill	"	3rd Artillery, N. G. N. Y.
H. Harris	"	Aviation Corps
Floyd Blook	"	"
C. Griswold	"	U. S. Marines
C. Bohm	"	U. S. Navy, Yeoman
Tom Zimarino	"	Cavalry
A. Klinkroth	"	Aviation Corps
Elva Springer	"	U. S. Marines
M. Fisher	"	"
Chas. J. Jones	Beacon Falls Rubber Shoe Co.	Co. I, 10th Regiment, N. G. N. Y.
Everett W. Wright	"	Co. I, 10th Regiment, N. G. N. Y.
Steve Bernacki	"	Polish Training School
William Bulka	"	Conn. 2nd
J. H. Caldwell	"	Co. H, 8th Mass.
T. D. Cardow	"	Fort Wright, N. Y.
William Cardow	"	Regular Service in Army
Ben Goldberg	"	Conn. 2nd
Frank Kelleher	"	Conn. 2nd Coast Artillery
Rudolph Lafferty	"	Conn. 2nd
Dominick Motsky	"	Navy
R. Wright	"	U. S. Navy
William Young	"	Conn. 2nd
Alexander Silver	Brighton Mills	N. G. N. J.
John O'Brien	"	"
George Condus	"	"
Michael Reno	"	"
John Schneider	"	"
John Freyland	"	"
Bruno Babbles	"	"
Ivan Sorken	"	"
James Delaney	"	"
Thomas Stewart	"	"
Thomas McCann	"	"
Joseph Galetta	"	"
William Green	"	"
Wasel Robeda	"	"
Gost Manuel	"	"
John M. Martin	"	"
John Matay	"	"
Cornelius Blum	Brighton Mills	N. G. N. J.
Frank O'Neill	"	"
Chas. E. Sage	"	"
James Hammond	"	Machine Gun
Raymond Kievitt	"	"
Stephan Tanzer	"	Fifth Regiment Band
Stephan Kocilevsky	"	Regular Army
Michael Bolas	"	"
Paul Schichler	"	"
Eri Cihowsky	"	"
John Novak	"	"
Thomas Natzel	"	"
Mike Pollak	"	"
John Kollar	"	"
Joseph Mc Ateer	"	"
Vincenza Yuppa	"	"
Y. Kalienk	"	"
Peter Tomas	"	"
John Himel	"	"
Sherley Richmand	"	"
Stanley Wienclow	"	"
Max Bayduk	"	"
Herman Glick	"	Navy
Joseph Liptak	"	"
Bruno Schor	"	"
Miles Reninger	"	Naval Reserve
Michale Markin	"	"
Raymond P. Clarke	"	"
Abe Kimmelman	"	Fort Myer
Jos. B. Jamieson	"	Ordnance Dept., Washington, D. C.
E. P. Miller	"	Ordnance Dept., Washington, D. C.
R. G. Conant	"	American Volunteer Ambulance Driver
Richard G. Bryant	Chicago Rubber Clothing Co.	Battery C, Wisconsin Natl. Guard
Clarence L. Smith	"	Battery C, Wisconsin Natl. Guard
William Rogan	"	Battery C, Wisconsin Natl. Guard
Carl Peterson	"	Battery C, Wisconsin Natl. Guard
Tony Dalchus	"	Battery F, Wisconsin Natl. Guard
Guy Green		Ambulance Corps, Wisconsin Natl. Guard
Claudius G. Pendill	"	Great Lakes Naval Training Station
Gilbert Berg	"	Naval Reserve
Francis Peil	"	Yeoman, Navy
Robert Chatterton	Davol Rubber Co.	National Guard, R. I
Joseph Carlone	"	Army
George Fuller	"	National Guard, R.
Antone Hilkinback	"	Army
Frank Jackson	"	National Guard, R. I.
Anthony Kahler	"	Army
Roland Pease	"	"
Alfred Suar	"	"
Clyde Anthony	"	Naval Reserve
George Read	"	National Guard, R. I

Name	Employer	Branch of Service
Philip Clarkin	Davol Rubber Co.	National Guard, R. I.
Fred Riley	"	Naval Reserve
A. A. Blattner	Dayton Rubber Mfg. Co.	Regular Army
Everett A. Brown	Firestone Tire & Rubber Co.	Company C, Syracuse, N. G. N. Y.
Frederick C. Havecker	General Rubber Co.	9th Coast Defence Command, N. G. N. Y.
William F. Strube	"	13th Coast Defence Command, N. G. N. Y.
Walter W. Daiker	B. F. Goodrich Rubber Co.	22nd Corps of Engineers, N. G. N. Y.
John F. Dippold	"	1st Field Artillery, N. G. N. Y.
James Higgins	"	23rd Regiment, Brooklyn, N. G. N. Y.
Joseph McGovern	"	69th Regiment, N. G. N. Y.
L. Stewart Rose	"	Troop C, Brooklyn, N. G. N. Y.
Harlan D. Tucker	"	23rd Regiment, Brooklyn, N. G. N. Y.
J. Boyden Limric	"	Essex Troop, Montclair, N. J.
Eugene F. Everett	"	Officers Reserve Corps, Plattsburg
Harry H. Comer	"	Red Cross Ambulance Corps, Chicago
J. H. Leo Plant	Goodyear's I. R. S. Co.	Naval Reserve
Edward Fitzpatrick	"	71st Regiment, N. G. N. Y.
Edward McCreery, Jr.	"	69th Regiment, N. G. N. Y.
C. L. Crook	Goodyear Tire & Rubber Co.	U. S. Marine Corps
R. S. Gale	"	U. S. Navy
W. C. Wiggins	"	"
H. E. Lewin	"	Ohio Engineers
C. J. Jeanney	"	Co. B, 8th Ohio
Chas. Bowers	"	U. S. Marines
Constantine Tyree	"	"
Evald M. Enstam	"	3rd Regiment, N. G. D. C.
Archie W. Kemper	"	U. S. Marines
John B. Fahey	"	"
Arthur R. Homewood	"	U. S. Army (Medical)
Chas. Harold Stoyle	"	Co. F., 8th Ohio Inf.
J. B. Kelsey	"	Hospital Corp Ambulance
George Anderson	"	Marine Corps
Earl D. Bean	"	4th Ambulance Co., O. N. G., Canton
Leonard Johnson	"	Ohio Engineers
Russell L. Arbuckle	"	Marine Corps
Samuel Callaway	"	U. S. Marines
Earl William Groff	"	Co. B, 1st Maryland
Wayne S. Dilts	"	Ohio Engineers
Charles H. Ridenor	"	Co. B, 8th Inf., Ohio
J. Schwartz	"	Marine Corps
Frank J. Enright	"	Medical Corps
Jay A. Cox	"	2nd Ohio Field Hospital
W. F. Drake	"	U. S. Marines
Wilber C. Holbrook	"	U. S. Marine Corps
William Conway Boss	"	U. S. Army
Mark E. Jacobs	"	Machine Gun Co., 8th Ohio
George L. Stewart	"	U. S. Marines
James Wiseman	"	Co. B, 8th Inf., Ohio
Luther C. Shelton	"	Marine Corps
Henry B. Smith	"	U. S. Navy
Sherwood F. Smith	"	Co. C, 7th Inf., Ohio
Geo. W. Stacy	"	Co.H, 8th Ill., N. G.
Clair B. Little	"	U. S. Marine Corps
E. P. McDowell	"	4th Ohio Ambulance Co.
J. O. Hoover	"	Penna. Ambulance Corps
Arthur Treble	"	U. S. Navy
F. R. Gibson	"	U. S. Marines
Alfred Caris	"	U. S. Army
Pearl G. Kilhefner	"	8th Ohio Hospital Corps
J. F. Lee	"	U. S. Navy
Chas. F. Smock	"	Co. B, 16th Penna, Inf.
Wynnfield O. Weller, Jr.	"	U. S. Navy
J. E. Little	"	8th Ohio Inf.
Walter Eickemeyer	"	Corp., 4th, O. N. G.
S. E. Bunsack	"	22nd Va. Inf.
Geo. Kepos	"	31st Michigan Infantry
Arlington Barthlow	"	Co. L, 1st W. Va. Infantry
Willard H. Weaver	"	Co. C, 1st W. Va. Infantry
Charles Root	"	Co. C, 1st W. Va. Infantry
Geo. S. Underhill	"	Co. F, 1st W. Va. Infantry
John T. Hill	"	Co. A, 1st So. Car. Infantry
William Collins	"	1st W. Va. Infantry
David Mayer	"	112th Co., Coast Artillery
H. A. Johnson	"	Co. L, 1st W. Va. Infantry
Ned Johnson	"	Co. I, 5th Ohio Infantry
Robt. Steam	"	Co. I, 1st W. Va. Infantry
Chas. S. Winslow	"	3rd Inf., N. G. D. C.
Jess Hazlett	"	Co. D, 2nd W.Va. Infantry
A. Beck	"	2nd U. S. Cavalry, Troop B
Beverly Critz	"	Co. C, 1st W. Va. Infantry
Earl Hider	"	Co. D, 8th O. N. G.
Judson Roberts	"	Co. D, 2nd W. Va. Infantry
Dwight T. James	"	Co. B, 2nd W. Va. Infantry
R. N. Summerton	"	Co. I, 16th Pa. Infantry
William Siebert	"	8th O. N. G. Infantry
Frank Uccellini	"	Co. I, 4th N. J. Infantry
W. A. Johnson	"	U. S. Navy
Chas. A. Myers	"	Co. K, 1st W. Va. N. G.
Harry F. Beuclich	"	3rd N. Y. Infantry
Wilbur L. Case	"	Co. L, 3rd N. Y. Infantry
Francis A. Wilt	"	Co. C, 18th Pa. Infantry
Carl Vincent	"	Co. A, 3rd Ky. Infantry
Frank Murray	"	Co. B, 2nd W. Va. Infantry
Samuel Cato	"	Co. I, 1st S. C. Infantry
William Marshall	"	2nd Ky. Infantry
Edgar Overn	"	Co. A, 2nd W. Va. Infantry
Lee Roy Burfield	"	3rd N. Y. Infantry
Ray Sederling	"	U. S. Army
J. J. Rivers	"	"
Blasingame	"	U. S. Marines
John Byrd Smith	"	U. S. Marine Corps
Robert Brower	"	"
Urban Hunter	"	U. S. Naval Volunteers
R. Sawyer	"	1st Field Artillery, Ala.
D. White	"	1st N. C. Cavalry
J. N. Shere	"	Battery B, O. N. G.
W. A. Ward	"	U. S. Cavalry
T. R. Den	Goodyear Tire & Rubber Co.	U. S. Cavalry
J. Burton	"	"
H. H. Harkins	"	Aviation Corps
H. DeLong	"	U. S. Cavalry
Folie Baker	"	U. S. Army
L. H. Tutt	"	Ambulance Corps
E. Daub	"	U. S. Navy
Al Fendrick	"	"
F. S. Constant	"	8th O. N. G.
H. G. Oliver	"	U. S. Army
M. Triplett	"	Co. F, 8th O. N. G.
James Taylor	"	U. S. Marine Corps
Okey Johns	"	"
Rupar Evans	"	U. S. Cavalry
Arthur Collier	"	U. S. Army
C. D. Hawk	"	U. S. Marine Corps
Thos. Michael	"	Battery B, O. F. A.
Jerry Stallings	"	U. S. Army
Chas. Brewer	"	Battery B, O. F. A.
Orville F. Simpson	"	U. S. Army Field Artillery
Neil Hotlel	"	U. S. Marine Corps
P. T. Wolfe	"	"
Coy M. Tippey	"	3rd Mo. N. G. Infantry
Earl Youngs	"	Battery B, O. F. A.
C. York	"	U. S. Army
S. Ray	"	U. S. Navy
Frank Steele	"	U. S. Army
Paul E. Smoyer	"	"
R. Harrison	"	Co. B, 8th O. N. G.
Ray Burke	"	U. S. Army Cavalry
Forest Knotts	"	U. S. Army
R. P. Jones	"	U. S. Navy
G. McKinnie	"	Battery B, 1st O. F.
S. P. Jordan	"	U. S. Army
W. J. Cox	"	"
J. S. Pierce	"	"
R. Clark	"	U. S. Army
T. J. Polland	"	Hospital Corps
J. Caruth	"	U. S. Army
W. D. Page	"	"
Fred M. Taylor	"	Battery O Artillery
E. F. Prior	"	U. S. Marine Corps
Albert J. Partridge	"	U. S. Navy
J. O. Thompson	"	Co. F, 8th O. N. G.
G. W. Davis	"	U. S. Navy
G. A. Lee	"	Va. N. G.
Talmage Wright	"	U. S. Army
Clifford Breidenstein	"	U. S. Army Engineers
I. J. Irvindal	"	Fla. N. G.
F. Urban	"	U. S. Navy
Martin Glasgow	"	Battery B, 1st O. F. A.
Wm. H. Ricketts	"	U. S. Army
C. E. Lippa	"	Battery B, 1st O. F. A.
John M. Miller	"	U. S. Army
Ersil R. Stoltz	"	"
Arthur Jacob Brust	"	U. S. Navy
Sears S. Day	"	Ohio Engineers
Pat Hudkins	"	U. S. Marines
Irl L. White	"	U. S. Army
Robert Toliver Holder	"	U. S. Marines
Wm. Evans Stork	"	U. S. Navy
Edgell Cox	"	U. S. Marines
Albert L. Smith	"	U. S. Army
E. W. Boyer	"	Cavalry
W. Womeldorf	"	"
H. J. Renes	"	U. S. Army
E. L. Carden	"	U. S. Navy
Frank Reynolds	"	"
R. N. Bodine	"	"
E. M. Shick	"	U. S. Marines
Elmer E. Johnson	"	U. S. Army
John H. Wills	"	Field Hospital No. 15
Paul Fidlen	"	U. S. Army
A. H. Calhoun	"	U. S. Navy
Rhu McKituck	"	"
J. B. Burley	"	U. S. Army
Wilbur F. Sills	"	"
Myron McClure	"	4th Co. Coast Artillery Corps
Paul E. Depp	"	U. S. Army
H. Cook	"	U. S. Marines
Joe Todd	"	Battery B, 1st O. F. A.
Newt Henry	"	U. S. Army
Lloyd E. Bussert	"	Co. C, 2nd Ohio Infantry
John V. Haggerty	"	Battery B, 1st O. F. A.
L. E. Fowler	"	U. S. Army
Robert Williamson	"	U. S. Navy
Lawrence M. Wilson	"	U. S. Army
Bryan A. Shannen	"	"
Theodore Pelts	"	"
C. R. Shetter	"	Co. A, 1st Iowa Engineers
H. A. Hudson	"	Battery B, O. F. A.
J. E. Hudock	"	U. S. Navy
Emmett Hallawell	"	U. S. Marines
Fred Kline	"	U. S. Navy
Walter C. Crane	"	U. S. Army
Andrew Kendra	"	"
Orvis T. Stafford	"	"
Nik Pappas	"	Co. L, 10th O. N. G.
R. J. Whiting	"	Co. F, 8th O. N. G.
Leo George	"	U. S. Marines
Walter M. Burley	"	8th O. N. G.
Howard Beebe	"	"
Albert Evans	"	"
Paul Briggs	"	Co. M, 5th O. N. G.
E. E. Pennell	"	8th O. N. G.
O. V. Emerson	"	Norfolk Navy Yard
Elmer Leland	"	Co. M, 7th O. N. G.
W. C. Cooper	"	Co. D, 8th O. N. G.
C. J. Huff	"	Co. B, 8th O. N. G.
Fred Stoechmann	"	Battery A, Wisconsin F. A.
William Christensen	"	"
John Faber	"	U. S. Army
Robert C. Hardin	"	Co. F, 8th O. N. G.
C. R. Geringer	"	Ambulance Co., No. 1, O. N. G.
P. Therbold	"	1st Ohio Ambulance Co.
Raymond E. Day	"	Machine Gun Co., 8th O. N. G.
E. Swisher	"	U. S. Marine Corps

Name	Employer	Branch of Service
H. Adleson	Goodyear Tire & Rubber Co.	American Ambulance Corps
Milton A. Pitman	"	U. S. Marine Corps
Henry Pardieck	"	————
T. B. Harris	"	Georgia Infantry, Co. F.
G. R. Fout	"	Co. F, 1st Reg., W.Va. N.G.
Blair W. Fisher	"	Co. D, 8th O. N. G.
Dr. L. D. Perry	"	Hospital Corps
Dr. Wm. Rogers	"	Surgeon, U. S. Navy
Fred Gillespie	"	1st Ambulance Corps
J. Miller	"	U. S. Army Medical Corps
Will Wallace	"	U. S. Reg. Motor Service
R. L. Randall	"	8th Ohio Infantry, Machine Gun Co.
H. H. Webster	"	Co. L, 7th O. N. G.
William H. Eyler	"	Co. H, 4th Ohio Infantry
Bert Dougherty	"	Co. L, 7th Ohio Infantry
W. L. Benson	"	Co. D, Ohio Engineers
Nelson R. Reeder	"	Co. B, 8th O. N. G.
Paul Boghasian	Gryphon Rubber & Tire Corp.	French Infantry Regiment
James Menasian	"	"
Charles Allen	Hartford Rubber Works Co.	Field Artillery, Ft. Slocum, N. Y.
Antonio Amendo	"	Field Artillery, Ft. Slocum, N. Y.
Wm. P. Berry	"	Barracks, Plattsburg, N. Y.
Martin Bonnell	"	Navy Yard, Brooklyn, N.Y
William B. Barker	"	Co. H, 1st Conn. Inf.
David Barron	"	Co. G, 1st Vermont Inf.
William J. Conner	"	Co. A, 1st Conn. Inf.
James E. Casey	"	Supply Co., 1st Reg. Inf., Hartford
Robert O. Cooley	"	Navy Yard, Brooklyn, N.Y.
Ernest F. H. Clois	"	Co. H, 1st Conn. Inf.
Thomas E. Buckley	"	Naval Training Station, Newport, R. I.
Edward Dumas	"	U. S. S. "Southery"
John Dignan	"	Co. H, 1st Conn. Inf.
Daniel F. Daly	"	Co. B, 1st Conn. Inf.
Mike Fyden	"	Field Art., 7th Reg., Bat. B.
Rollie Frechette	"	Co. H, 1st Conn. Reg.
John F. Flannigan	"	2nd Div. N. M., Hartford, Conn.
Henry A. Gould		Co. H, State Armory, Hartford, Conn.
Frank H. Harness	"	Co. H, 1st Conn. Inf.
Frank Hamilton	"	Co. A, 1st Conn. Inf.
W. D. Hopper	"	Co. H, 1st Conn. Reg.
Charles V. Hart	"	Officers Training Corp., New Haven, Conn.
Antone F. Hilkenback	"	5th Co. C. A. C., Ft. Adams Newport, R. I.
Robert G. Jones	"	Co. A, State Armory, Hartford, Conn.
Edwin G. Jones	"	Co. H, 1st Conn. Inf., Hartford, Conn.
Thomas Lennon	"	Co. H, 1st Conn. Inf., Hartford, Conn.
William L. Lux	"	U. S. N. R. F., Hartford, Conn.
Lawrence Murphy	"	U. S. S. "Georgia"
William A. Mazzoni	"	Co. H, 1st Conn. Inf., N. G.
Thomas E. Morgan	"	"
Joseph Murphy	"	U. S. Receiving Ship, Navy Yard, Brooklyn, N. Y.
Frank Muragensai	"	Co. B, 1st Conn. Inf., Hartford, Conn.
William F. Needham	"	Co. H, 1st Conn. Inf., Hartford, Conn.
Daniel J. O'Connell	"	State Armory, Hartford, Conn.
Thomas W. O'Connor	"	Medical Corps, 2nd Me. Reg.
Rodney C. Puffer	"	Field Artillery, Ft. Slocum, N. Y.
Harry A. Perkins	"	Barracks, Plattsburg, N. Y.
Carleton B. Perry	"	U. S. S. "Kearsarge"
Anders Ridderborg	"	Co. M, 1st Conn. Inf.
Harry T. Robertson	"	Medical Dept., 2nd Me. Inf.
Harold B. Robinson	"	Co. E, 6th Mass. Reg.
Joseph C. Orient	"	Co. H, 1st Conn. Inf.
William L. Shea	"	Co. F, 1st Conn. Reg.
Francis G. Swan	"	Co. H, 1st Conn. Reg.
Bernard J. Scott	"	U. S. S. "Nahma"
Paul Trabucchi	"	Co. H, 1st Conn. Inf.
Michael J. Tierney	"	Co. K, 9th Mass. Reg.
Joseph Tracy	"	Co. K, 1st Conn. Inf.
Anthony Tyszka	"	Co. H, 1st Conn. Reg.
George W. Voucher	"	Co. G, 1st Vermont Inf.
G. A. Waldo	"	Co. H, 1st Conn. Inf.
John H. Williams	"	"
Emery S. White	"	Co. H, 1st Conn. Reg.
A. N. Wilber	"	Band, 1st Conn. Reg.
William Walker	"	Co. H, 1st Conn. Inf.
J. A. Faulkner	Henderson & Korn	National Guard Cavalry, Cleveland
Albert L. Meyer	"	Naval Reserve, Newport, R. I.
Paul Seiberling	Indiana Rubber & Ins. Wire Co.	————
Hubert Hodupp	"	————
Wayne Tucker	"	————
Clarence McKee	"	————
John Myers	"	————
Ray Sutphin	"	————
Joe Sutphin	"	————
James Sheehan	"	————
Ray Odell	"	————
Robert Winslow	"	————
Edward Monahan	"	————
Perry McKee	"	————
George A. Colgan	Hood Rubber Co.	Army
Thomas J. Mehorg	"	"
Wm. O'Keefe	"	Navy
J. White	"	"
John Shields	"	"
Samuel Blacker	"	Army
Harry H. Grossman	"	"
George E. Wilson	"	Coast Artillery
E. Emery	"	Army
Frank Youd	"	"
Valvan Godoshian	"	

Name	Employer	Branch of Service
Krikor Kerorkian	Hood Rubber Co.	Army
Satrick Nazarian	"	"
Anthony Mosman	"	"
John Carroll	"	Naval Reserve
Thomas Nicholas	"	Army
Michael Treddin	"	National Guard
Michael Coyne	"	Navy
C. Cicony	"	"
G. Concordia	"	Army
Michael McInerny	"	Navy
Felix Niemczem	"	Army
Ralph Deghan	"	"
Richard McCarthy	"	Marine
Ivan Whidden	"	Navy
Albert W. Thompson	"	Army
Robert K. Brown	"	Navy
Harold M. Watson	"	Army
Beriger Anderson	"	"
Joseph Maloney	"	Navy
John Kennedy	"	"
Alfred O'Reilly	"	"
Paul Davis	"	"
Charles Goodwin	"	"
Raymond Bryson	"	"
George Stewart	"	"
Frank Ryan	"	"
Lawrence Burrell	"	"
Manuel Acebo	"	"
John Reynolds	"	Army
Osgein Abdalian	"	"
John Andoorian	"	"
Frank Grasey	"	"
Harold Ross	"	"
William Footer	"	"
Albert Cormier	"	National Guard
Martin Crosby	"	"
Arthur Footer	"	Kilties
Carroll Whittemore	"	Naval Reserve
Edward Leonard	"	Army
Leonard Smith	"	"
Thomas Russell	"	Naval Reserve
Joseph G. Murphy	"	Aviation Corps
John E. Harrigan	"	Coast Artillery
Edward Gunnerson	"	Army
William E. Rowan	"	National Guard
Volney G. Jenkins	"	Army
John J. Germoyle	"	Navy
Henry W. Carr	"	"
Wm. Clomey	"	"
J. McDougall	"	Army
J. H. Moore	"	"
W. D. Roberts	"	Marines
R. H. Stead	"	Navy
K. Wasley	"	"
S. Wilkowski	"	Army
E. F. Cunningham	"	Coast Artillery
Daniel Lane	"	National Guard
James D. Morgan	"	Marines
John Sartell	"	Navy
William Kenney	"	"
William Boudreau	"	"
Robert Mulvaney	"	"
Cleophas E. White	"	"
Frank J. Gremley	"	Army
Weston D. Baxter	"	"
George Stamand	"	Cavalry
Robert H. Hale	"	National Guard
Joseph R. Brown	"	Army
James G. Prout	"	Naval Reserve
Herbert S. Jackson	"	Base Hospital No. 5 (France)
Nishon Nighosian	"	Army
Nishan Garabedian	"	"
Chas. B. Kemp	"	Navy
Marcar Minasian	"	Army
John Woodoian	"	"
Vahan Vartanian	"	"
Tony Lee	"	"
Rafaele Marino	"	Navy
Andrew Leonard	"	"
Leopold Levine	"	"
Matos Tawetian	"	"
Wm. Tiffany	"	Army
Avedis Ohanian	"	————
George Goshigian	"	Army
Daniel Noonan	"	Navy
Thomas Leavey	"	"
Paul T. Collins	"	"
Harold Follansbee	"	"
George Karas	"	Army
Louis Bortolino	"	"
Timothy F. Murphy	"	Navy
Joseph Giordono	"	Army
Sarkis Fanarjian	"	"
G. Torosian	"	"
Vartan Markosian	"	————
Guy Verro	"	————
D. Worrino	"	Navy
S. Arzanniarrian	"	Army
T. Santaro	"	"
M. Torosian	"	"
Matthew Fox	Rubber Association of America, Inc.	1st N. Y. Field Artillery, N. G. N. Y.
H. Bradley	United States Tire Co.	9th Coast Art'y, N. G. N.Y.
J. F. Burke	"	8th Coast Art'y, N. G. N.Y.
M. F. Cassidy	"	7th Regiment, N. G. N. Y.
G. Gordon	"	71st Regiment, N. G. N. Y.
J. H. Hoffman	"	2nd Field Art'y, N. G. N.Y.
Wm. Honig	"	1st Field Art'y, N. G. N. Y.
H. Lobel	"	9th Coast Art'y, N. G. N.Y.
P. McFadden	"	22nd Engineers, N. G. N.Y.
J. McMillan	"	7th Infantry, N. G. N. Y.
R. A. Quinn	"	7th Regiment, N. G. N. Y.
A. F. Reilly	"	69th Regiment, N. G. N. Y.
N. H. Rowe	"	22nd Engineers, N. G. N.Y.
A. Schappert	"	7th Regiment, N. G. N. Y.
E. Winkler	"	8th Coast Art'y, N. G. N.Y.
K. Wotherspoon	"	7th Regiment, N. G. N. Y.
Samuel H. Young, Jr.	United States Rubber Co.	7th Regiment, N. G. N. Y.

Chemical Industry Plans Elaborate Exposition

Indications Point to Largest and Most Complete Convention of Trade Ever Held—R. W. Browse New Manager of Buffalo Goodrich Branch—Metallic Rubber Shoe Workers Support Loan

Chemical Exposition Program

All things point to the Third National Exposition of Chemical Industries at the Grand Central Palace, New York, during the week of Sept. 24, being a much greater success than its predecessors, and will be the largest and most complete exposition of these industries ever held at any place in the world. To the banker it will show what chemistry means, to the manufacturer, scientist, industrialist, the where, when, what and how of the latest machinery developments and process operations, and how he can by greater effort or efficiency become more productive.

This exposition is viewed by the manufacturers in every line as a great exchange, a clearing house for the industries, and look forward with keen interest to its opening. Already the list of exhibitors contain 250 names of companies entering every field of industry.

On Monday, Sept. 24, at 2 P. M., opening addresses will be made by Dr. Charles H. Herty, chairman of the Advisory Committee of the Exposition and editor of the *Journal of Industrial and Engineering Chemistry*, by Prof. Julius Stieglitz, president of the American Chemical Society; Dr. Colin G. Fink, president of the American Electrochemical Society, and Dr. G. W. Thompson, president of the American Institute of Chemical Engineers.

Among other speakers on the program for other days are W. S. Kies, vice president National City Bank, who will speak upon "The Development of Export Trade with South America"; Prof. Marston Taylor Bogert, chairman Chemistry Committee, National Research Council, who will speak upon "The Operation and Work of the National Research Council for the National Weal." Dr. L. H. Baekeland of the Naval Consulting Board will make an address on "The Future of American Chemical Industry."

One day will be devoted to a symposium upon the national resources as opportunities for the chemical industries. Among the different speakers will be C. H. Crawford, assistant to the president of the Nashville, Chattanooga & St. Louis Ry.; V. V. Kelsey, chemist-industrial agent, Carolina, Clinchfield & Ohio Ry.; Dr. E. A. Schubert, mineralogist-geologist, Norfolk & Western Ry.; Dr. T. P. Maynard, mineralogist-geologist, Central of Georgia Ry. and Atlantic Coast Line Ry., and Dr. J. H. Watkins, geologist, Southern Ry.

The motion picture program will be one of wide interest. The American Cyanamid Co. and General Electirc Co. having already arranged to supply their films. The Bureau of Commercial Economics at Washington will supply many toward completing the range of industrial films.

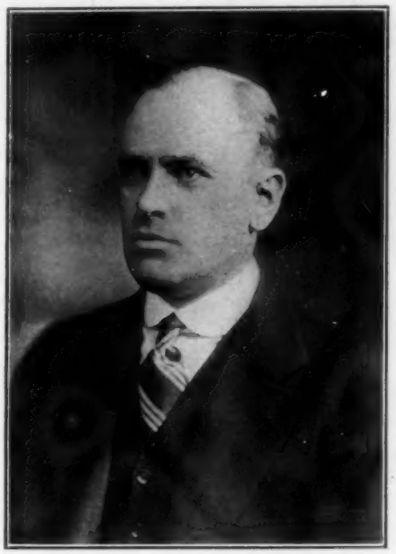
Employes Support Liberty Loan

The first Liberty Loan received hearty support at the plant of the Goodyear's Metallic Rubber Shoe Co., at Naugatuck, Conn. An active and successful campaign there resulted in a total subscription of $49,250 from employes. Out of a total of 1,468 employes in the plant, 1,113 subscribed—76%.

The company bought the bonds covering this amount and is now carrying them, allowing the employes the opportunity of paying for them at the rate of 2% per week.

R. W. Browse Appointed to Buffalo

Buffalo motorists and automobile and accessory dealers are shaking hands this week with R. W. Brouse, the new manager of the local branch of The B. F.



Goodrich Rubber Company, who succeeds F. E. Titus.

Mr. Brouse comes to Buffalo from Philadelphia where he has been assistant Branch Manager for the past two and a half years, and this new post is a promotion which follows eight years' service, almost to a day, with the Goodrich factory and sales organizations.

In July 1909 Mr. Brouse entered the service of the Goodrich Company as a laboratory assistant at the Akron factory but the following year advanced to the truck tire department where he served in various capacities until December 1911, when he was given active charge of the truck tire department of the Philadelphia Branch.

Up until this time the Philadelphia Branch had not had a man who could give his entire time to a truck tire department, but Mr. Brouse's keen attention to detals together with a pronounced mechanical ingenuity, knowledge of shop practices and efficiency and an excellent memory, enabled him to build the present Philadelphia truck tire department.

In January 1915, when an assistant manager was needed for the Philadelphia Branch, attention was turned to Mr. Brouse, not only because of his successful management of the truck tire department, but because of his ability in handling every small detail of whatever work came under his direction.

Two years and a half service in this capacity has fitted Mr. Brouse particularly well for the important duties incidental to the management of the Buffalo Branch and his going there marks a significant appreciation by the Goodrich officials of his executive ability.

Presents Moose to Library

William Jameson, assistant superintendent of the Fisk Rubber Co., Chicopee Falls, Mass., has presented the Chicopee public library with a mounted moose head. It is a magnificent specimen, and has been placed in a prominent place in the children's room.

Financial News of the Rubber Trade

Ajax Earnings for Half Year Amount to Nearly $9 a Share on Outstanding Stock—New Stock Issue Announced by Portage—U. S. Rubber Co. Declares Two Per Cent Dividend

Ajax Earnings

Earnings of the Ajax Rubber Co. for the first half of 1917 amounted to $1,257,461, equal to nearly $9 a share on the outstanding stock. Sales increased 59 per cent. Net surplus was $1,016,712, after allowing for dividends. Orders for 66,000 casings and 48,000 tubes are on the books. Two dividends totalling $390,000 were paid in the six months. The statement follows:

ASSETS.

Cash on hand and in banks	$625,328
Bills receivable	593,025
Payment on $100,000 Liberty Bonds	18,816
Accounts receivable	3,133,432
Deferred assets	103,550
Inventories	2,311,639
Goodwill account	1,842,701
Investment account	15,100
Plant, equipment, etc.	1,740,559
Total	$10,384,150

LIABILITIES.

Capital stock	$7,100,000
Accounts payable	534,609
Bills payable	1,100,000
Reserves	632,827
Surplus	1,016,712
Total	$10,384,150

Mason Reports June Earnings

Special Akron Correspondence

The June sales of the Mason Tire & Rubber Co. are reported at $150,000, and the earnings at $39,455.

Portage Offers New Stock Issue

Special Akron Correspondence

A new stock issue has been announced by the Portage Rubber Co. for Aug. 23.

A million dollars worth of the old preferred stock, now in the company treasury, will be cancelled and in its place will be issued $500,000 of 7 per cent, cumulative, non-participating preferred and $500,000 of new preferred.

Each stock holder of record Sept. 1 will be entitled to the new stock at par to 50 per cent of his holdings. He must take half common and half new preferred.

The new preferred is redeemable after January 1920 at 112.

Fisk Buys Gibney Assets

H. C. Thompson, receiver, has been directed to sell the assets of the Gibney Tire Rubber Co. for $408,187. The manufacture of solid tires will be continued to the fullest capacity of the plant and for the present as a branch factory of the Fisk Rubber Co. The product will be marketed by the Fisk Rubber Co. of New York through its branch houses and through branches already established by the Gibney concern.

U. S. Rubber Declares Dividends

The United States Rubber Co., New York, has declared a two per cent dividend, to be paid to the holders of the first preferred stock on July 10.

War Revenue Bill Still Delayed

Decks Cleared in Senate for Important Legislation, but Tax Bill Will Probably Be Held Up Until October—Speedy Action on Monster Aviation Appropriation—War Department Purchases Large Number of Heavy Motor Trucks

(*Special Washington Correspondence*)

The conclusion of the debate in the Senate on the Food Control bill has in a degree cleared the decks for other important legislation, but the prospects are that the passage of the War Revenue bill will continue to be delayed and it is doubtful if it gets to passage before October. While it appears quite likely that there will not be the usual revenue to the Government from the big liquor interests, the Committee on Finance has definitely decided not to attempt to change the War Tax bill in committee. The measure will be reintroduced in the form in which it was brought out, and the committee members will propose amendments from time to time during its consideration in the Senate.

If all of the legislation of Congress could be as speedy as that which resulted in the appropriation of $640,000,000 for aviation, Congress could soon conclude its work and adjourn. The House action was very prompt and there was a delay of only two days in the Senate.

The transportation division of the War Department is making very large purchases of heavy motor trucks and has recently let contracts for trucks as follows: Packard, 1,800; Locomobile, 400; Clinton, 3,750; Pierce-Arrow, 800; Jeffery, 3,000; Garford, 900.

The storage committee of the General Munitions Board of the Council of National Defense has issued a statement in which it says that the Government, and indeed every purchaser of goods, must make every effort to buy near the point of utilization so as to make the one necessary railroad haul as short as possible. More and more the motor truck must be used for local deliveries of freight not only between the plant and freight assembly station but to consumers at relatively nearby points. "This will mean in many instances," says the statement, "the organization of a joint motor car service by the manufacturers of a given district to insure that as nearly as possible full motor truck loads may be available for each trip. This motor service will not be in many cases the cheapest method, but motor trucks will probably provide the only means of regularizing the transportation service."

RICHARD B. WATROUS.

Rubber Reclaimers Meet

The Rubber Reclaimers Division of the Rubber Association of America held a well attended meeting on July 24 in Boston.

A shore dinner was enjoyed at the Point Shirley Club, at Winthrop, as was also an automobile tour to Marblehead. Both of these events were arranged by Capt. Francis H. Appleton, chairman.

The next meeting of the Reclaimers Division will be held in Atlantic City, N. J., on Sept. 21.

W. K. Salisbury & Co. Moves

W. K. Salisbury & Co., manufacturers and distributers of rubber goods, have removed from 105 South Wabash Avenue to 308-310 West Madison Street, Chicago, Ill., owing to the growth of business and continual additions to the company's lines.

National Opens Branch

The National Rubber Co. of New York, has opened a local branch at 1704 Grand avenue, Kansas City, Mo., in charge of E. R. Flesher.

Mr. Feist, president of the company, believes that by opening a chain of stores to market their own products they will reduce the price to the consumer.

Firm Opens Three New Branches

F. A. Stresen-Reuter and Charles R. Sargent of the firm of Stresen-Reuter & Hancock, Inc., Cleveland, Ohio, opened three new offices for their firm recently. In New York the new branch will be located at 292 Pearl street, in Philadelphia at 418 Market street, and in Toronto at 82 Richmond street, East. All three offices are now open and in operation.

This expansion, says Mr. Sargent, is due to the healthy growth of their business in colors, minerals, and chemicals that has made it necessary for them to carry stocks in cities other than Cleveland in order to serve their trade to advantage.

Many New Buildings for Rubber Companies

Goodyear Purchases 13 Acres in South America—Ideal Will Build Large Plant—Racine Auto Tire Co. to Build—Firestone Plans New Detroit Office and Warehouse

To Build Near Rio de Janeiro

(*Special Washington Correspondence*)

Consul General Alfred L. M. Gottschalk, Rio de Janeiro, reports to the State Department that the Goodyear Tire & Rubber Co. of South America has purchased in the neighborhood of Rio de Janeiro, known as Gavea, approximately 13 acres of land on which a rubber factory is to be built. Two streams of water run along the boundary of the property, and besides these water for cooling purposes will be pumped from the Lagoa de Fretias, which is close by. It is stated that the plant is to be built to manufacture articles enumerated in the company's contract with the Government, which includes rubber goods, copper wire for insulating, canvas and other cotton fabrics for use in making tires and other products. The company has assured the Government that the plant will be in operation within fifteen months after the plans are approved.

Ideal to Build $200,000 Plant

The Ideal Tire and Rubber Co., located at 325 Guardian Building, Cleveland, is preparing for the erection of a plant to cost approximately $200,000. Actual work on the construction will commence next month.

The new plant will cover fifteen acres of land in the south-eastern part of Cleveland, with a railroad frontage on both the B. & O. Railroad and the L. E. and P. Railroad, affording excellent shipping facilities. The plant will be made large enough to turn out 500 tires a day, according to the present plans of the company.

Ford Building Tire Plant

Included in the various buildings being erected at the River Rouge by Henry Ford, Detroit, Mich., will be a very large unit, which it is expected will be devoted to tire manufacturing. Tires made in this factory will be manufactured exclusively for Ford cars.

BeSaw and Ardmore-Akron to Build

BeSaw Rubber Co. and Ardmore-Akron Rubber Co. have made plans for plants which will occupy 5 acres of land in Ardmore, Pa.

Firestone to Build in Detroit

The Firestone Tire & Rubber Co. of Akron, Ohio, will erect a large four-story building at Detroit, Michigan, at a cost of $500,000. The building will be used for sale and stock purposes.

Racine Auto Tire Co. to Build

The Racine Auto Tire Co., Racine, Wis., organized in 1910 with a capital stock of $500,000, has announced plans for the erection and equipment of a complete new tire and tube plant with a capacity of 7,500 tires a day, and employing from 3,000 to 4,000 operatives. The present plant produces 400 tires a day and employs 150 men. Last fall the company purchased the former Racine baseball park property and is planning a five-story reinforced concrete and steel plant, 260 x 320 ft. Work will begin about Aug. 1, so that occupancy may be taken early in 1918. The Racine Auto Tire Co. features the Horseshoe tire.

Norwalk Buys Hat Factory

The Norwalk Tire & Rubber Co., Norwalk, Ohio, has doubled its factory space, and expects to more than double its output of Norwalk tires in keeping with orders. It has purchased the Ash Hat factory in Norwalk, thus obtaining a suitable structure immediately, obviating the necessity of waiting while one was built.

Federal Building Addition

The Federal Rubber Co., Cudahy, Wis., which recently awarded contracts for the erection of another large factory addition, has undertaken plans for an addition to the office building, to be 40 by 145 ft. in size, two stories and basement, conforming with the present offices.

Boone to Have Another Plant

The Boone Tire & Rubber Co., of Sycamore, Ill., has contracted for the erection of a third plant, to be located at Chipewa Falls, Wis., to cost about $125,000. The main plant is at Sycamore and the second plant at Des Moines, Ia.

Fisk to Erect Building

The Fisk Rubber Co. of New York has decided to establish a permanent branch in Nashville, Tenn., and will shortly begin the erection of a handsome salesroom and service station.

A vulcanizing and repair shop will be installed with all modern machinery.

Home Rubber to Build

The Home Rubber Co., Trenton, N. J., manufacturer of mechanical rubber goods, has acquired property 50 x 100 ft., on Wolverton Avenue, adjoining its plant, for the erection of an addition.

News of the Rubber Metropolis

Second Akron Correspondent of The Rubber Age Answers Country's Call—Draft Subjects Rubber Factories to Labor Shortage—F. E. Titus Becomes Head of Goodrich Foreign Sales Department—Seiberling Entertains His Employes

David Darrah Goes to France

Special Akron Correspondence

The second Akron correspondent of THE RUBBER AGE to answer the call to service in the European war is David Darrah, who succeeded Harold S. French—who left for Europe only a month ago. David Darrah, his successor, gave up his duties in Akron, July 22, to follow his predecessor across the water.

Mr. Darrah is a graduate of the Municipal University of Akron. He has for several years been identified with Akron and Cleveland papers, and has also acted as correspondent for New York newspapers.

Mr. Darrah, together with Russell Henderson, well known Akron sporting editor, were to have sailed for France Wednesday, July 18, but their sailing was postponed on account of the temporary illness of Mr. Darrah, which delayed his innoculation and vaccination. Both men are members of the American Field Ambulance Service and will soon see service on the French front.

Akron rubber manufacturers and the Rotary Club assisted Mr. Darrah in financing his way, as the only thing provided for the ambulance men in France is their board and lodging.

Factories Face Labor Shortage

Special Akron Correspondence

Unless a special dispensation from Washington takes notice of the number of men who have enlisted from Akron when the final draft quota is made up from the rubber metropolis the industries here will be badly crippled.

One glance at the lists of names of men drafted is enough to convince anyone that the big rubber factories are going to face a serious labor shortage when the men are called away.

Already the heavy enlistments from Akron, numbering several thousand, have been felt by local employers. A petition to draft officials to count Akron's volunteers off the draft quota has so far met with no favorable response. "The question is being considered" is the only reply to the petition down to date.

Auto Theft Problem Discussed

Special Akron Correspondence

Akron automobile men together with the city and county prosecutors and one of the police captains of the Akron force attended a convention of automobile men at Columbus recently to consider the automobile-theft problem which has become a big one in Ohio, especially in Akron.

Resolutions were adopted recommending that convicted auto thieves be put to work on public roads during their term of sentence and that auto owners lock their cars before leaving them at the curb. The matter of protecting extra tires from theft was mentioned. "Lock them on," was the general opinion.

Not a Single Blowout!

Special Akron Correspondence

The Saxon Automobile agents here held a three-day exhibition, preceded by an owner's parade. Akron tires stood the test—there wasn't a single blowout.

Goodrich Again Promotes F. E. Titus

"Mr. Titus leaves for New York." The announcement marks the latest step in the promotion of F. E. Titus of The B. F. Goodrich Rubber Co.

Ever since December 3, 1906, F. E. Titus has been a Goodrich man. He began at that time as a clerk in the

engineering department of the factory at Akron. Tending strictly to business had its reward, for in the Summer of 1907, when the Goodrich company needed an assistant manager in Buffalo to work with W. O. Rutherford, then local manager, but now general sales manager of the company, they took Mr. Titus.

In 1911 the Denver branch of the Goodrich organization was in need of a manager. Mr. Titus was chosen—but his stay in Denver was a brief one, for a short time later an operating manager was needed for the large store in Buffalo. And again they took Mr. Titus.

Late in 1914, the Pittsburgh store was without a manager—and this was looked upon as one of the most important branches in the organization. Goodrich had to have a man who could "get to" Pittsburgh. They needed a man who could build and hold business. Mr. Titus was that man.

With the beginning of last year the store in Buffalo had reached a point where the natural growth of its business required Mr. Titus again.

Now the Goodrich firm needs a man in its New York offices to handle the foreign sales department. The man for this post had to be a man who had made an "American success." He had to be above all else a big man in the selling force. Furthermore, he had to be a thorough executive alive to the possibilities of foreign trade and new business. Mr. Titus was again chosen.

Firestone Sends Santasiere Abroad

L. W. Santasiere, formerly with the New York branch of the Firestone Tire & Rubber Co., Akron, Ohio, has been appointed a foreign traveler for the company.

Mr. Seiberling Entertains 18,000

Special Akron Correspondence

F. A. Seiberling, head of the Goodyear Tire & Rubber Co., is one of the most democratic men in the Rubber City.

Not content with enjoying the beauties of his million dollar home, Stan Hywet Hall, immediately west of the city, he invited every one of the 18,000 employes of the Goodyear to visit him.

On the first Sunday, visiting day, the office force motored or trolleyed out to the big estate, where they were met and welcomed by Mr. and Mrs. Seiberling.

On the next Sunday the factory workers were made equally welcome. Automobiles met every street car at the end of the line and carried the thousands of visitors over the two miles of Portage Path to the hall, poised like an ancient castle of stone on a prominence overlooking Big Cuyahoga Valley.

Draft Impartial in Akron

Special Akron Correspondence

That draft numbers fell upon Akron men regardless of their position in life is shown by the following list of prominent rubber men who will be called for examination in the first draft:

Don Stevens, head of the labor department of the Goodyear Tire & Rubber Co.; George Kryder, a Case graduate, and member of the Firestone Tire & Rubber Co. force; Attorney A. F. O'Neil, son of M. O'Neil, head of the General Tire & Rubber Co.; Warner Lee Hamlen, son of H. B. Hamlen, Goodyear official; R. A. D. Preston, Goodyear balloon expert.

Akron Police Question Serious

Special Akron Correspondence

The rubber industry that has been the cause of most of Akron's civic problems because of the tremendous boom it has created here, may be appealed to to solve at least one of them, city officials say.

The rubber men may be appealed to by Mayor William Laub to supply funds providing for at least 50 additional policemen for the Akron force. The large floating population of Akron has made the police problem here a serious one.

Goodrich Smoker Big Success

Special Akron Correspondence

The second smoker by the Goodrich Yellow Dogs and the Goodrich Athletic Association, held last week, was a big success. Over 700 attended. Features of the evening's entertainment were fencing, boxing and vaudeville.

Dr. Oscar Junek and D. Perreza demonstrated the use of the foils. Young Scott, Young Atlas, and other less scintillating local boxers showed how the gloves ought to be handled.

Annex for Girls' Dormitory

Special Akron Correspondence

An annex is being built on the dormitory at Rex Lake, the Goodrich country club for girls. It will accommodate 300 additional girls summer or winter.

A 50-foot fishing and diving pier is being built into the lake. Grounds are being prepared for tennis and croquet. All Goodrich girls have the run of the grounds.

Miller Rubber Opens Cafeteria

The Miller Rubber Co., Akron, Ohio, recently opened a cafeteria for its factory employes, who now number 3009. The cafeteria has been carefully installed and every detail is provided for equipment, convenience and service. The kitchen outfit has been designed along strictly modern lines and the prices for food are on a cost basis.

Notes of Interest to the Rubber Trade

Davol to Use Own Labels and Imprints—Republic Rubber Co. Absorbs Knight Firm—Sales of Mason Tire and Rubber Co. Reported at Two Millions a Year—Jollie a Supervisor

Davol Adopts New Sales Policy

The Davol Rubber Co., Providence, R. I., manufacturers of druggists' sundries, have recently adopted a new sales policy, which, while protecting the jobbers' interests, will enable the manufacturers to build up a reputation for their goods.

Heretofore the Davol Company have been manufacturing goods under jobbers' trade marks, but believing that the American public has a right to know who made the goods it is buying, they will now sell their goods with Davol labels and imprints.

They feel entitled to the credit that comes from producing goods that give service and satisfaction. When goods are placed on the market under special labels and imprints, the manufacturer who made the goods has to bear the burden of all adjustments, and receives no credit when goods give satisfaction.

This company is now sending out monthly bulletins, showing various items of their products, together with prices, and they are quoting to retailers a discount of 33 1-3 per cent off the prices listed on these bulletins, which instruct the retailer to place his order through any jobber he wishes to deal with. The jobber is thus protected, and receives a discount substantially larger than the 33 1-3 per cent quoted to the retail trade. Up to the present time, no bulletins have been distributed among the retail trade of large cities, distribution having been limited to places of less than 25,000 inhabitants.

It is understood that the Davol Company will continue to make special brand goods for large jobbers in sundries.

Greek Embargo on Rubber Goods

Raw, waste, and reclaimed rubber, and objects made of rubber, wholly or in part, as well as automobile and bicycle tires, are included in the embargo which has been announced by the Provisional Greek Government, located at Saloniki. Notice to this effect has been given the American consul in Saloniki and has been submitted to the Department of State over his signature.

R. G. Conant in Ambulance Service

Richard G. Conant, for four years salesman for the Brighton Mills in Passaic, N. J., manufacturers of tire fabrics, sailed for France as a member of the American Volunteer Motor Ambulance Corps on June 30. Friends of Mr. Conant's and associates in the Brighton Mills have contributed a fund of $3,000 for the ambulance he is to drive while in field service.

Swinehart Names New Salesmen

Special Akron Correspondence

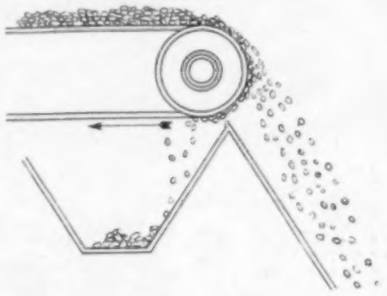
The Swinehart Co. has named the following as new salesmen at the following Swinehart branches: Edward McCarren, Boston; Mr. Springgate, Chicago; George Mannhart, LeFevre, and Green, Detroit; George Newton and C. D. Hall, Kansas City.

Jollie Now Supervisor

R. T. Jollie, Jr., has been appointed supervisor of the Ajax Rubber Co., in Ohio, West Virginia and Kentucky.

Booklet Describes Magnetic Pulleys

Magnetic separator pulleys used to remove magnetic matter from non-magnetic bulk material, and to protect grinding, crushing and pulverizing material form the subject of a new booklet, "S," just published by the Cutler-Hammer Manufacturing Company, Milwaukee, Wis. The



booklet describes a variety of uses for the magnetic separator pulleys, including the functions of the pulley in rubber reclaiming plants and in fiber factories. The operation of the pulley is shown in the accompanying illustration. Non-magnetic material is projected beyond the pulley while magnetic material is held in contact with the conveyor belt until the latter passes under the pulley.

Knight Tire Merged with Republic

Plans for the enlargement of the Republic Rubber Co. through a merger with the Knight Tire and Rubber Co. has created much interest in the trade. The acceptance of the presidency of the concern by Guy S. Norwood was regarded as the forerunner of developments that would give Republic tires a larger place in the industry than they have occupied in the past, and it was almost to be expected when he secured a well equipped tire plant with which to increase production.

The appointment of H. J. Woodward as general sales manager of the merged companies is also regarded as an important move in the strengthening of the organization. Mr. Woodward was with the Diamond Rubber Co. before he joined the Knight forces.

That the rubber business outside of the tire end is not to be neglected is indicated by the recall to the factory of C. W. Hardin to take charge of the sale of mechanical goods. Mr. Hardin was formerly manager of this division of the New York branch of the Republic company. Two other important appointments are in the announcement that M. E. Murray will be in charge of the Chicago branch and Mark R. Roe of the engineering department.

The organization is preparing to do a gross business of approximately $18,000,000 the first year.

Globe Tire Business Grows

Sales of the Globe Rubber Tire Mfg. Co., Trenton, N. J., have increased 200 per cent since its formation, according to J. B. Linerd, its general manager. The company was formed last fall, when it purchased part of the property of the United & Globe Mfg. Co.

Mason Plant Has Rapid Growth

The sales of the Mason Tire and Rubber Co. are now growing at the rate of $2,000,000 a year, according to a recent statement issued over the signature of D. M. Mason, general manager of the concern. The company is producing 500 tires a day, and is at present building four extensions to the plant, including a warehouse, mill room, main plant addition, and a new office building. It is claimed that the capacity of the plant will be 1,500 tires a day by the beginning of next year.

Net earnings for the quarter up to July 1, were at the rate of $300,000 a year. During the past two months the company has paid eighteen months' accumulated dividend due on the 7 per cent. cumulative stock, as reported in the last issue of the RUBBER AGE. The fore part of August the dividend due on preferred stock from Jan. 1 to July 1 will be paid upon a quarterly dividend basis. The company claims its production 50 per cent. oversold for the balance of the year, tires being distributed in practically every state of the union.

Mason has four direct factory branches, in Cleveland, New York, Kansas City, and Akron, and plans the opening of several additional branches in the near future. The tire line includes plain, ribbed, and non-skid, with a cord tire in preparation that will be placed upon the market about the first of the new year.

Several experienced tire men have recently joined the personnel of the Mason plant. Among them are Dave Kennedy, formerly advertising manager of the Swinehart Tire and Rubber Company, and John H. Diehl, former sales manager of the Portage Rubber Company.

Davol Transfers Salesmen

Several changes have been made in the sales department of the Davol Rubber Co., Providence, R. I. R. J. Fries, who during the past ten years has been in charge of the New York office at 302 Broadway, has been transferred to the head office in Providence as advertising manager and will head the new department of publicity and promotion. Oliver W. Gill, formerly of the Faultless Rubber Co. is now manager in New York.

J. C. Poore, formerly of the Vorhees Rubber Co., will cover Pennsylvania, New York state and New England. L. G. Abbott has charge of the Boston office and E. J. George is manager of the Chicago office. George A. Sheehan is in command of the Pacific coast forces with headquarters at San Francisco.

Mr. Davol has announced that the last six months have been the most successful in the history of the company, which is now in its forty-third year. It was founded by Joseph Davol, father of the present president and treasurer.

New Incorporations

The Outlet Co., Inc., New York City; Capital, $1,000. To deal in automobile tires; Incorporators: G. H. Parcells, J. B. Parcell

Nebraska Tire & Rubber Co., Omaha, Nebr.; Capital, $500,000; To manufacture and sell automobile tires, tubes and casings; Incorporators: E. G. Wolfe, G. C. Peiornet, C. E. Niswonger.

Stearns Tire & Tube Co., Dubuque, Ia.; Capital, $25,000; To deal in automobile tires and accessories; Incorporators: Adolph A. Schneiderhahn, G. T. Timmermann.

Akron Cord Tire Co., Akron, Ohio; Capital, $35,000; Incorporators: N. G. Witsaman, W. C. Washburn, J. Richard Stanley.

National Rubber Sales Co., Terre Haute, Ind.; Capital, $25,000; To buy, sell and repair automobile tires, etc.; Incorporators: Elmer S. White, D. R. Ulmer, E. M. White.

Items for the Tire World

Coasting Test Shows Cord Tires Superior to Fabric—Keystone Opens New Texas Office—Lee Rubber and Tire Co. May Manufacture Cord Tire—Marathon Managers Meet

Testing Tires by Coasting

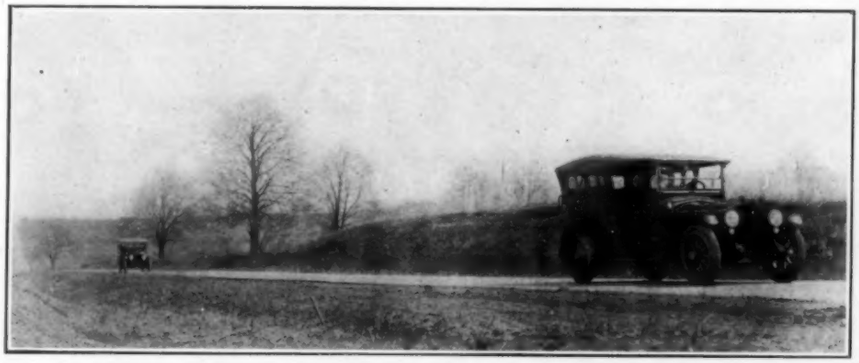
Perhaps one of the most simple though conclusive demonstrations of a point of superiority of cord tires over fabric tires is the coasting test.

Such a test was recently carried out by the Firestone Tire & Rubber Co., Akron, O., which took two Packard touring cars

ON THE MARK

of the same model, weight and body, and equipped one with the new Firestone Super-Size Cord tires, the other with fabric tires. These two cars were lined up on the brow of a hill and both were released at the same time.

The cord-equipped machine was reported to have gone thirty yards from the starting point before the fabric-tired car had gone ten. At the foot of the hill, which was about a 7 per cent grade and



THE FINISH—CORD TIRES THE WINNER

100 yards in length, the super-size cord equipment was fifty yards ahead.

At the finish, after coasting a distance of more than a quarter of a mile, the super-size cords were fifty-seven yards ahead.

The tires were changed from one machine to the other and the test repeated, with practically the same result, the cord equipment rolling almost sixty yards further than the fabrics.

Marathon Managers Confer

Division managers of the Marathon Tire and Rubber Company met in conference at the home office of the company in Cuyahoga Falls, Ohio, recently. The week of the meetings was devoted especially to a consideration of the greatly increased business announced by the company for this year, and to the national advertising campaign about to be launched. H. H. Replogle, manager of sales, entertained the division managers at dinner during their conference.

Keystone Opens Dallas Branch

J. A. Charles, representing the Keystone Tire & Rubber Co. of New York, closed a lease on the property at 2002 Commerce street, Dallas, Texas, recently, and will open a Southwestern headquarters for the concern by the end of July. The new concern will be known as the Southern Service Tire & Rubber Co. and will be one of the forty branch houses in the United States operated by the Keystone company.

One of the features of the concern will be free tire repair service. Any automobilist in the city who has a tire, regardless of whether he is a customer or not, can take it to the station and have it repaired free of charge. All kinds of tires, tubes, etc., will be included in the company's stock.

Cupples Manufacturing Tires

The Cupples Co., St. Louis, Mo., has started the manufacture of automobile tires. This company has been manufacturing household articles since 1851, and until a few months ago was known as the Cupples Woodenware Co. The tire department was the outgrowth of a number of years' successful manufacture of fruit jar rings. The daily output will be 175 tires and 350 tubes. This will be increased later. The tire is built along established lines, the non-skid tread being letter C, back to back and staggered. The tire sells for $22 for a 30 by 3 size.

Charles Hall with Gryphon

Charles Hall, formerly of the New Castle Rubber Co. and of the Dunlop Tire Co. of Canada, is now superintendent of the tire making and curing at the factory of the Gryphon Rubber & Tire Co., New York City. Mr. Hall has worked in rubber mills since a boy and is well known in the large tire factories throughout the Middle West.

Lee Experimenting with Cord Tire

The Lee Rubber & Tire Corp., Conshohocken, Pa., is said to be producing tires at the rate of 25,000 a month. The original plans called for 20,000 per month.

The company is now experimenting with a new cord tire, and it is expected that if the experiments are successful this will be added to the regular tire and the puncture-proof tire now produced.

Brady Joins Four Wheel Drive Co.

Walter Brady, formerly associated with the U. S. Tire Co., has joined the sales force of the Four Wheel Drive Auto Co.

Amazon Advertising Free to Dealers

The Amazon Rubber Company at Akron is the originator of a very unique line of advertising material, all of which is furnished to the dealer absolutely free of charge. This includes newspaper advertising, outdoor bulletins and circular let-

ters, without charge for either newspaper space or letter postage.

Special road signs, lithographed stationery, business cards, etc., all imprinted with the dealer's name, are also given him. One of the main features of the advertising is the outdoor painted bulletins. This bulletin is 8 x 32 feet long, painted in several colors, and stands for a period of three years. These boards are all erected for the dealer without charge for erection or rental.

Sterling Changes

Thomas W. Shaw, formerly of the Newark, N. J., branch of the Sterling Tire Corp., is now manager of the Albany, N. Y., branch.

Francis B. Wycoff, formerly of the New Haven branch, is now inside man at Brooklyn, N. Y.

Schoneman to Open Chicago Branch

Charles Schoneman, who has done such excellent work in Hackensack and Baltimore and more recently as division manager of the Sterling Tire Corp., has been appointed manager of the new Chicago branch of that company, and is already getting things started there.

Sells Tires; Practices Law

According to reports, Frank T. Faircloth, advertising and sales manager of the Keaton Tire & Rubber Co., San Francisco, Cal., has been admitted to the bar. He will continue with the tire company and has opened offices in conjunction with a well-known legal firm.

Taylor Becomes Resident Manager

W. H. Taylor, formerly engaged by the U. S. Tire Co. to distribute tires among jobbers, becomes resident manager of the Peoria, Ill., branch of the company.

Tire for Advertising Purposes

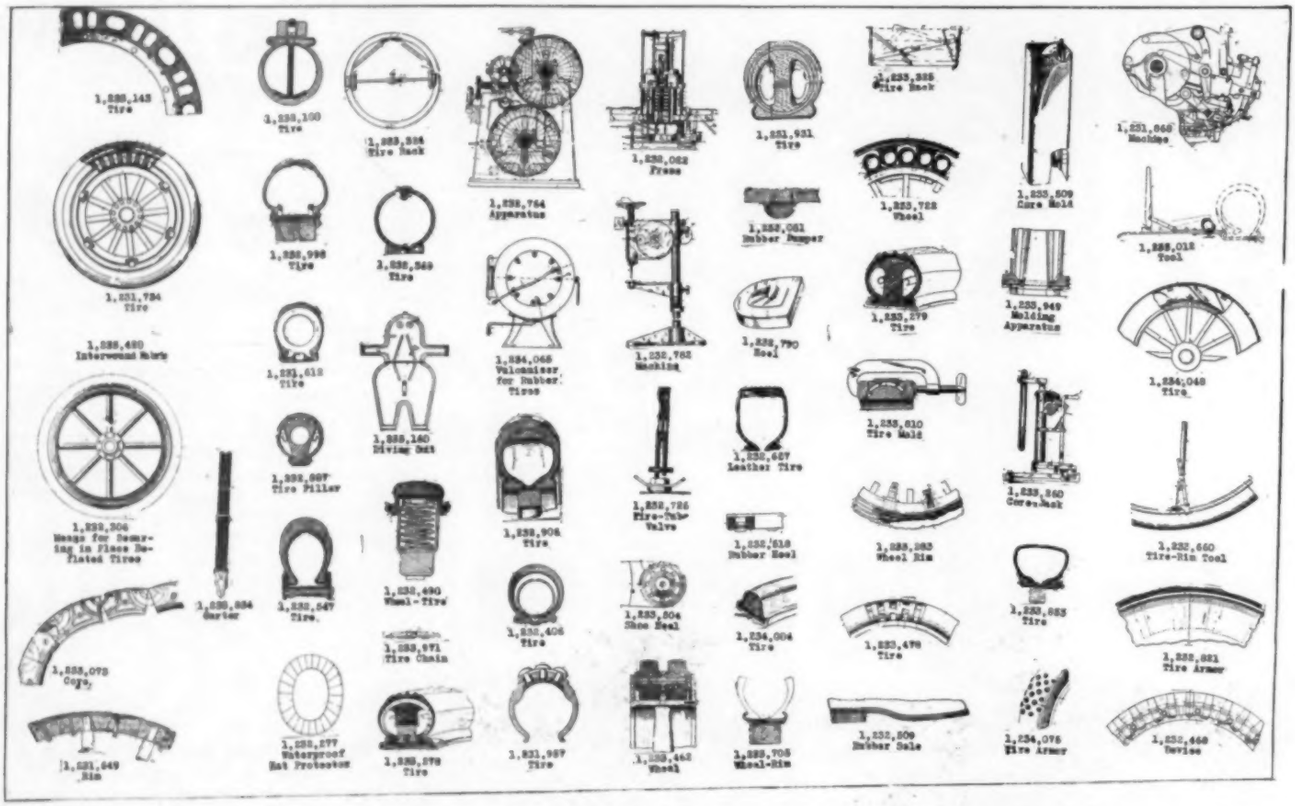
An unusual advertising novelty is being sent out by the Batavia Rubber Company of Batavia, N. Y. It is in the form of a miniature rubber tire and serves

the purpose of an eraser. A metal circle, inscribed with a suitable advertisement, keeps the tire taut and ready for service.

American Rubber Patents

ISSUED JULY 3, 1917

1,231,612—To Osmon P. Hoyt, Monroe, N. Y. Pneumatic Tire.
1,231,645—To Fred B. Pfeiffer, Akron, Ohio. Tire Vulcanizer.
1,231,649—To Fred Reese, Eutaw, Ala. Rim and Tire for Wheels.
1,231,734—To Roland R. Harmon, Baltimore, Md. Wheel-Tire.
1,231,868—To Andrew Eppler, Lynn, Mass., assignor to United Shoe Machinery Co., Paterson, N. J., a corporation of New Jersey. Shoe-sewing Machine.
1,231,931—To Isaac Normandi, St. Catharines, Ont., Canada. Automobile Tire.
1,231,957—To John Calvin Smith, Mobile, Ala., assignor of twenty-four hundredths to Charles W. Head and twenty-five hundredths to Bruno Garcia, Mobile, Ala. Automobile Tire.
1,232,782—To William E. Field, Hartford, Conn., assignor to The Hartford Rubber Works Co., Hartford, Conn. Machine for Testing Plastics.
1,232,787—To John R. Gammeter, Akron, Ohio, assignor to the B. F. Goodrich Co., New York, N. Y. Fluid Press for Rubber Footwear.
1,232,790—To Isaac Gilber, Chicago, Ill. Heel.
1,232,821—To William McNames, Aberdeen, S. D. Tire Armor.
1,232,887—To Rolla B. Bostwick, Cleveland, Ohio. Filler for Tires.
1,232,906—To Albert M. Ferguson, Rochester, N. Y., assignor to William Keyel, Penfield, N. Y. Resilient Tire.
1,232,981—To Henry C. Sampson, San Francisco, Cal. Emergency Rim.
1,232,998—To Herbert O. Tibbits, Cleveland, Ohio. Resilient Tire.
1,233,012—To John Elmer Ashbaugh and William Ross King, Clarksburgh, Pa. Tire Applying and Removing Tool.
1,233,324—To Edward Downing, San Francisco, Cal., assignor to Hoover Spring Co., San Francisco, Cal. Automobile Tire Rack.
1,233,325—To Edward Downing, San Francisco, Cal., assignor to Hoover Spring Co., San Francisco, Cal. Automobile Tire Rack.
1,233,420—To Lawrence A. Subers, East Cleveland, Ohio. Laminated Cohesive, Interwound Fabric Constructed in Tubular Form.
1,233,459—To John Flint, Emu Plains, near Penrith, New South Wales, Australia. Rubber Substitute.
1,233,462—To Franklin A. Frommann, Chicago, Ill., assignor to Olive Frommann. Vehicle Wheel.
1,233,464—To James E. Haines, Toronto, Ontario, Canada, assignor to Annie A. Haines, Toronto, Ontario, Canada. Pneumatic Tire.
1,233,465—To Archer H. Harris, Barberton, Ohio, assignor to The Firestone Tire & Rubber Co., Akron, O., a corporation of Ohio. Demountable Rim.
1,233,478—To Ison B. Irons, Morgantown, W. Va. Tire.
1,233,504—To John Plant, Douglas, Alaska. Shoe Heel.



1,232,022—To John R. Gammeter, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y., a corporation of N. Y. Vulcanising Press.
1,232,100—To Otto Schulz, New York, N. Y. Pneumatic Tire.
1,232,110—To Thomas Sloper, Denizes, Eng. Manufacture of Rubber Goods.
1,232,277—To Isaac Glaser, Washington, D. C. Waterproof Hat Protector.
1,232,306—To William H. Heron, Washington, D. C. Means for Securing in Place and Rendering Useful Deflated Pneumatic Tires.
1,232,369—To David H. Moore, Oklahoma, Okla. Airless Vehicle Tire.
1,232,406—To Claude W. Stewart, Martinsburgh, W. Va. Vehicle Tire.
1,232,468—To Nelson E. Wright, Springfield, Mass. Anti-Skidding Device for Wheels.

ISSUED JULY 10, 1917

1,232,490—To Arthur H. Burns, Penn Yan, N. Y. Wheel-Tire.
1,232,509—To Oscar C. Davis, Brockton, Mass. Reinforced Rubber Sole.
1,232,518—To Elias J. Emery, Portsmouth, N. H. Rubber Heel.
1,232,547—To Carl J. Holmes, Des Moines, Iowa. Resilient Tire.
1,232,592—To Thomas N. Morris, Chicago, Ill., assignor of one-half to George B. Dryden, Chicago, Ill. Tire Valve.
1,232,657—To Abraham Cohn, St. Louis, Mo. Leather Automobile Tire.
1,232,726—To Sidney C. Sladden, New York, N. Y. Pneumatic Tire Tube Valve.
1,232,764—To James W. Brundage, Akron, Ohio, assignor to The Miller Rubber Co., Akron, Ohio. Apparatus for Manufacture of Hollow Rubber Articles.
1,233,051—To Philip H. Gundermann, Chicago, Ill. Rubber Bumper.
1,233,073—To John F. Lister, Cleveland, Ohio. Flexible Core for Tire Strip-Forming Machines.
1,233,143—To Antonio Teres, Habana, Cuba, assignor of one-third to Manuel Pireto and one-third to Miguel Gorzueto, Habana, Cuba. Tire.
1,233,160—To Charles S. Altoonian, Providence, R. I. Combined Life Preserver and Diving Suit.
1,233,190—To Lewis A. Coleman, Norfolk, Va., assignor to American Chemical & Mrg. Co., Inc., Norfolk, Va. Waterproof Filler.
1,233,260—To John H. Mulloy, Detroit, Mich., assignor to Morgan & Wright, a corporation of Michigan. Core-Jack.
1,233,264—To Morris E. Curtis, Everett, Mass. Plastic Composition and Process of Making the Same.
1,233,278—To David D. Messner, Akron, Ohio, assignor of one-third to Samuel A. Messner, Akron, Ohio. Tire.
1,233,279—To David A. Messner, Akron, Ohio, assignor of one-third to Samuel A. Messner, Akron, Ohio. Tire.
1,233,283—To James H. Wagenhorst, Akron, Ohio, assignor of one-fifth to The Goodyear Tire & Rubber Co., a corporation of Ohio, one-fifth to U. S. Tire Co., a corporation of New York, N. Y., two-fifths to B. F. Goodrich Co., a corporation of New York. Vehicle Wheel Rim.

ISSUED JULY 17, 1917

1,233,509—To August C. Rogalske, Los Angeles, Cal. Core Mold.
1,233,513—To Jacob R. Scott, North Weymouth, Mass., asignor to United Shoe Machinery Co., Paterson, N. J. Sole-Sewing Machine.
1,233,628—To Chas. Weeland, New York, N. Y. Tire Holder.
1,233,660—To Arthur A. Friestedt, Chicago, Ill., assignor to Fristedt Mfg. Co., Chicago, Ill. Tire-Rim Tool.
1,233,705—To James T. Ronald, Seattle, Wash. Wheel-Rim.
1,233,722—To Emory N. Smith, Akron, Ohio, assignor of one-half to Freedrick Kempel, Akron, Ohio. Resilient Wheel.
1,233,753—To Albert C. Cline, Alonzo H. Crowell and Charles M. McCorkle, Newton, N. C., assignor of two-eighths to said Cline and three-eighths to said Crowell and three-eighths to said McCorkle. Healing Compound for Closing Tire Punctures.
1,233,810—To Daniel Roberts, Trenton, N. J. Tire Mold.
1,233,834—To Albert Bauman, Jersey City, N. J. Garter.
1,233,853—To James Drummond, Carl Spuhel and Fritz Spuhel, Kansas City, Mo. Pneumatic Tire.
1,233,949—To Albert E. Abel, Wilkinsburg, and Thomas H. Davies, Black Lick, Pa., assignors to The Marshall Foundry Co., Pittsburgh, Pa. Molding Apparatus.
1,233,971—To William H. Brown, Margaretville, N. Y. Tire Chain.
1,234,004—To Frank Funderburgh, Huntington, Ind. Vehicle Tire.
1,234,048—To Vernie Lock, Chanute, Kansas. Resilient Tire.
1,234,065—To Charles E. Miller, Anderson, Ind Vulcanizer for Rubber Tires.
1,234,075—To William H. Opitz, Bedford, Ind. Tire Armor.

Market for Manufactured Rubber Goods

NEW YORK, July 27, 1917.

Generally speaking, decided dullness is apparent in the market for manufactured rubber goods during this summer vacation season. No one seems to care to move ahead until the outlook is clearer.

Buyers appear to have plenty of goods available for the time being, and most manufacturers are engaged in the filling of orders already in hand.

The dull situation is largely due to conditions outside of the rubber trade proper. It is impossible to get away from the influence of the national military draft upon the markets. All are watching to see to what extent their forces will be reduced by the needs of the Government.

The Russian situation, the huge financial operations that are under way, the mixed-up condition of legislative affairs, the constantly growing purpose to get down to our business in earnest, and the shipping problems, are all having the natural effect of making business cautious.

All in all there is a cheerfulness and optimism due chiefly to the assurance found in many places that no legitimate business interest will be allowed to suffer, and to the frequent assertion in Government circles that speculators are to be curbed.

MECHANICAL GOODS

In general the market for mechanical rubber goods is quiet. Buyers are confining their operations to the covering of positive needs, and in many instances are able to cover by stock lots. Some manufacturers report no contracts worth mention for goods to be manufactured, and others say they are taking only a few small orders.

Opinions as to the causes of the dullness differ. Some believe that users of mechanical goods are well covered by the heavy buying that was indulged in during the past four or five months. Others simply blame the usual midsummer dullness. Prices are not wavering, and are held remarkably firm, for many manufacturers believe they will soon be well occupied with Government work which will stop manufacture in many lines, and they will then need all their present stock to supply the current needs of the civilian trade.

Whatever the future may bring, the present demand is the lightest reported in many months.

Some rubber mills have secured large Government contracts for mechanical goods which they are producing at very low figures.

SOLES AND HEELS

The rubber sole and heel industry is passing through a critical period, but there are many reasons for optimism as to its future.

The scarcity and high price of leather, also the growth of the shoe repairing trade, which has been remarkable since the outbreak of the war, created an unusual demand for soles and heels made of rubber and compositions. This situation caused many rubber manufacturers, both large and small, to plunge into the sole and heel industry, and many new concerns were formed to specialize in these lines. It was not long until production exceeded demand and curtailments in the manufacture of shoes, due to scarcity and high price of leather, further aggravated conditions.

Many believed that price-cutting was the solution of the dilemma, with the result that the market is now glutted with inferior rubber soles and heels, and both are suffering from public disfavor.

The large concerns, and in fact most of the small ones, engaged in this line of manufacture, have come to the realization that it is only by eliminating wasteful manufacturing and foolish business methods that the industry can be saved from even greater decline than it is now experiencing. Acceptable qualities of merchandise must reach the consumer with a fair margin of profit to all parties concerned in the trade.

The large rubber companies are conducting effectual propaganda to render the soles and heels they produce more popular, to assist jobbers, and jobbers' salesmen, and they are carrying this good work into the ranks of repair dealers, where a great field exists for co-operation and improvement of conditions.

TIRES

The tire trade is feeling the general dullness of trade conditions and the uncertainty which is holding back business. Some concerns report substantial increases of business compared with last year, but in general the trade is feeling the effects of new conditions brought about by the war.

There are no increases in the prices, though all the materials entering into their manufacture are still on the high levels they ascended to during the course of the last year.

Solid rubber tires are not affected by the general dullness, and many concerns have difficulty in keeping up with the demands.

The Government is taking large quantities of all kinds of tires at prices far lower than could possibly be granted to the civilian trade

DRUGGISTS' SUNDRIES

The druggists' sundries trade, like many other branches of American business and industry, has not yet adjusted itself to war conditions, and the approaching season does not now promise to be as brilliant as was expected.

The trade is suffering much from the uncertainty of conditions; many dealers and distributors are refraining from purchasing more sundries than are required for positive needs.

The retail trade is selling large quantities of bathing caps, but the season started late and most of the retailers had unusually large stocks of these goods. It looks now as though many retailers will find themselves with plenty of caps left over at the end of the season.

Some manufacturers are planning again to use bathing caps as a leader for selling big bills of goods, and to accomplish this it is said they intend to offer bathing caps at cut prices. It is rumored that one concern at least plans to offer a large line of caps at 75 cents a dozen. Such action will probably start other manufacturers on a price-cutting campaign which cannot be expected to benefit the trade.

Government orders have been placed in druggists' sundries and surgical goods. Contracts have been let for large quantities of catheters, syringes, bed sheets, etc., but these are small when compared with orders that are expected. Judging from what happened with our Allies, manufacturers of druggists' sundries will not have time to give much attention to civilian business, as the Government will keep them busy, and it is not improbable that dealers too prudent in their purchases will find real difficulty in filling their requirements in rubber sundries.

With the prospect of at least a half million American troops active in the field by spring, and following the theory that it is better to be safe than sorry, it would appear that too much conservatism in wholesale and retail civilian purchases of druggists' sundries may lead to hardships for the consumers.

FOOTWEAR

The leather boot and shoe trade is not working to capacity, and it may be due to war conditions. Buyers are not operating normally.

The Government, within the last month, has contracted for 9,000,000 pairs of shoes, to be made entirely of leather, but this does not appear to disturb the typical buyer, who holds to the hope that in some way or another he will be able to buy cheaper.

However, some manufacturers of rubber foot wear are very busy and many report to be behind in their orders. The scarcity and high cost of leather naturally leads to the use of substitutes, which explains the enormous demand for rubber and canvas shoes at the present time.

ARCTICS FOR THE NAVY

The Navy Department has awarded contracts for furnishing 195,000 pairs of rubber arctics to the following concerns:

The United States Rubber Co., New York City, 85,000 pairs, 15-inch, at $3.05 a pair;
The B. F. Goodrich Co., Akron, O., 55,000 pairs, 15-inch, at $3.05 a pair;
The Hood Rubber Co., Watertown, Mass., 55,000 pairs, 15-inch, at $3.05 per pair.

This foot wear is to be delivered at the Provision and Clothing Depot, Navy Yard, Brooklyn, N. Y.

The Fabric Market

NEW YORK, July 27, 1917.

Fluctuations of the raw cotton market have again been erratic, the features which brought about a sharp advance having been the supposition that the political situation in Germany pointed toward peace, and the continued drought in parts of Texas. Later it became apparent that the change in the German ministry on the contrary was a strengthening of the extreme war party, and good rains were reported throughout the dry section, so that the market lost its improvement.

Yesterday trade buying and the scarcity of October contracts offset favorable weather and the Russian news, and prices again advanced.

The closing prices, July 25 and 26, follow:

	Closing	
	July 26.	July 25.
Aug.	25.27 bid	25.20 a 25.25
Sept.	24.58 bid	24.41 a 24.43
Oct.	24.42 a 24.47	24.25 a 24.27
Nov.	24.30 bid	24.09 bid
Dec.	24.23 a 24.28	24.05 a 24.08
Jan.	24.10 a 24.13	23.96 a 23.99
Mar.	24.28 a 24.30	24.12 bid
May	24.43 a 24.44	24.26 a 24.27

EGYPTIAN COTTON

According to the most recent reports from Alexandria, the strength of the American markets and the considerable advance of Egyptians in Liverpool are influencing the market favorably, as far as the Egyptian holders are concerned. On June 15, the prices were about $2 higher than the preceding week. The market, however, was very narrow and the volume of business transacted was small.

When large orders had to be put through there were wild fluctuations.

The spot market, although more active, is hampered by shipping difficulties. The freight situation for America remains unchanged.

As to the 1917 crop, weather has been more favorable for the cotton plant but not hot enough to destroy the cotton leaf worm, the appearance of which is practically general all over the Delta. Should cool weather persist, a heavy attack is said to be probable.

ALEXANDRIA STATISTICS FOR THE WEEK ENDING JUNE 22, 1917

	Arrivals Cantars	Exports (Bales) England	Contin't	America	Exports Cantars	Total Stock Cantars
This week	90	4,164	545	....	35,867	672,861*
Same week, 1916	2,918	3,673	1,880	10	42,116	219,053
Same week, 1915	16,181	1,595	1,103	981	27,857	1,267,692
Since Sept. 1, 1916	4,988,020	318,125	120,670	128,245	4,330,159	....
Same time, 1915	4,564,845	326,485	179,852	182,882	5,236,122	....
Same time, 1914	6,304,401	335,393	272,444	157,194	5,803,009	....

From the American standpoint the situation in Alexandria is somewhat of a mystery. With cotton the chief source of Egypt's revenue and a great demand existing for it, American interests cannot figure why it is that so much is put in the way of their efforts to get Egyptian cotton to this country. Only recently a ship waited a full week in Alexandria without being able to load a bale of cotton, though there were thousands of bales on hand. Shippers disputed, time passed, and the ship sailed without cotton.

American cotton mills have their requirements well covered up to the first of the year, but if Egyptian cotton does not come faster than it has been coming, other cotton will have to be used. Sea Island is, of course, standard, and peeler is becoming popular. Tests made with it in tires have so far proved more satisfactory than expected. Peruvian cotton also furnishes a very good fiber, that it is said can easily take the place of the Egyptian variety.

SEA ISLAND

A good crop of Sea Island cotton appears to be likely and prices on futures are very firm with a marked upward tendency. No spot is available.

YARNS

There are few changes to report in the cotton yarn market, which is practically featureless. Trading is confined costly to stock lots with sales individually small and, generally speaking, for immediate delivery.

Spinners are well covered with orders, they are independent and not disposed to make concessions. Buyers are waiting developments and are following the hand-to-mouth policy they have practised for some time past.

FABRICS

The mills are so fully sold that they are standing firm on prices for future business. No one is purchasing in excess of well defined needs and instances of speculation are rare. Rubber manufacturers have purchased liberally and are not worrying at present over conditions in the fabric market.

TIRE FABRICS

Prices for tire fabrics hold firm though there is little or no buying.

The mills being well sold are not aggressive and manufacturers are so uncertain as to the future that they are not anxious to burden themselves any more than is necessary.

A feature of the situation is the willingness with which sellers accept moderate orders. This is typical of the caution that now rules in the trade. Instead of worrying when a buyer takes but a small portion of his allowance of merchandise, some houses express relief. The mills prefer not to go ahead for a full season's business under present conditions, but there is no belief, however, that there will be any permanent falling off in consumption.

HOSE AND BELTING FABRICS

Like all other markets just now, that of mechanical ducks for the civilian trade is quiet. A readustment of production is going on in these lines due to pressing Government business and few stocks are being accumulated.

There is apprehension of price fixing by the Government. Duck houses whose prices to the Government were very low, are advancing prices on commercial lines steadily, so that higher price levels can be expected.

The existing facilities for producing heavy army ducks have been insufficient to meet Government needs, even by turning over to this work many looms engaged in other lines. Carpet looms have been put on army duck weaving and at least 25 per cent of tire fabric machinery has been converted to the making of other ducks.

DRILLS, OSNABURGS AND SHEETINGS

In these lines there is the same hesitation as in other quarters. This is due to causes outside of the regular routine of business. International affairs, money conditions and other uncertain matters are slowing down business and the market would be in a bad shape were it not for the large Government requirements, which are keeping everyone very busy.

GARMENT CLOTH

Cloth markets are dull. The demand is lightest reported in many months. Sellers are not pressing goods and buyers hesitate to purchase even when told that some low offers would be acceptable. The general lassitude of trade is the chief cause of the quiet. Perhaps high prices also have something to do with the checking of activity.

BURLAPS

Very few burlaps are being offered in the local trade, especially in heavyweights, some large houses being unable to quote owing to the uncertainty of shipments.

The shipping situation does not seem to improve at all and the largest factors in the trade were never so bare of merchandise. June burlap shipments from Calcutta were reported last week by cable. The yardage given is larger than generally expected but it has had no effect upon the market. Shipments to East coast ports are 33,500,000 yards and to West coast, 25,000,000 yards. The unusual proportion of goods shipped via the West coast indicates the trend of transportation from India and the scarcity of vessels sailing across the Atlantic.

NEW YORK QUOTATIONS

TIRE FABRICS.

17¼-ounce Sea Island, combed.	sq. yd.	$1.60@1.70
17½-ounce Egyptian, combed		1.40@1.45
17¼-ounce Egyptian, carded		1.30@1.35
17¼-ounce Peelers, carded		0.80@0.90
17¼-ounce Peelers, combed		1.00@1.05
American Carded Staple, 12 to 20 yarn, per lb. (pound basis)		.60
American Carded Staple, 8 to 10 yarn, per lb. (pound basis)		.55

MECHANICAL DUCKS

Hose (spot)	lb.	.55
Hose (future)		.55
Belting (spot)		.55
Belting (future)		.55

DUCKS

Single Filling (pound basis)	lb.	$ .52
Double Filling (pound basis)		.56

DRILLS

37-inch	2.35-yard	yd.	.19
37-inch	2.75-yard		.17
37-inch	3.00-yard		.15½
37-inch	3.25-yard		.14¾
37-inch	3.50-yard		.14
37-inch	3.95-yard		.13
38-inch	2.00-yard Southern	lb.	.45
38-inch	2.00-yard Northern		.48
40-inch	2.47-yard Southern	yd.	.18
40-inch	2.47-yard Northern		.20
52-inch	1.90-yard Southern		.26½
52-inch	1.90-yard Northern		.27⅞
52-inch	1.95-yard Southern		.26
52-inch	1.95-yard Northern		.27
60-inch	1.52-yard Southern		.32
60-inch	1.52-yard Northern		.32¾

SHEETINGS

40-inch	2.35-yard	yd.	.20
40-inch	2.50-yard		.17
40-inch	2.85-yard		.15½
40-inch	3.00-yard		.14¼
40-inch	3.25-yard		.13¼
40-inch	3.60-yard		.13⅜
40-inch	3.75-yard		.12½
40-inch	4.25-yard		.11
38-inch	Jacket Cloths	linear yd.	.17@.18

TWILLS FOR PROOFING

37-inch	2.85-yard	yd.	$ .17
37-inch	2.35-yard		.19
37-inch	2.10-yard		.23

COTTON STOCKINETTES (52-inch.)

E	11½-ounce	yd.	.75
A	11 -ounce		.50

BURLAPS (Spot Carload lots.)

40-inch	7½-ounce	per 100 yards	$10.00
40-inch	8 -ounce		11.20
40-inch	10 -ounce		13.50
40-inch	10½-ounce		13.60

Chemicals and Compounding Materials

NEW YORK, July 27, 1917.

There was a steady demand for chemicals and compounding materials, especially for future delivery, and a firm undertone prevailed for the more important items in the list. Delays in shipments, due to the freight situation, as well as the growing scarcity of basic materials, caused inconvenience to the trade. In sulphur the situation failed to show any improvement, from the consumers' point of view. Sulphuret of antimony is firmly maintained in all quarters. Zinc oxide for spot delivery was nominal, but contract prices underwent no changes. English vermilion closed firm. Solvents ruled steady.

ANTIMONY

A firm undertone featured the market for sulphurets, shipments on old contracts being heavy. While new business came forward rather slowly, the paucity in supplies caused prices to hold at 25 @ 26c. for the red, 28 @ 29c. for the golden and 51 @ 52c. for the crimson.

ANILINE OIL

The market was steady so far as manufacturers were concerned, asking prices ranging from 30c. to 32c. per pound. Second-hands, however, were sellers of scattered parcels on the basis of 28 @ 29c. per pound, spot delivery. The demand for aniline oil was reported as quiet.

BENZOL

A better inquiry was reported for pure benzol and the market closed with prices steady. Large producers quote from 55c. to 60c. per gallon, the inside figure obtaining for round-lots, in tanks, f.o.b.

works. Solvent naphtha was quoted at 18 @ 22c. per gallon.

DRY COLORS

Standard grades of English vermilion were firm around the $2 per pound basis. In blacks the output of producers is well sold up and the market on practically all grades is strong. Rubber makers' lampblack was quoted from 4½c. to 6c. per pound.

LEAD PIGMENTS

The market closed firm, in sympathy with the metal, but corroders still quote on the basis of 11½c. per pound for the basic carbonate. Red lead was held at 13c. per pound for large quantities. Lithopone was quoted from 6½c. to 7c. per pound.

ZINC OXIDE

The scarcity of spot material caused holders to advance their prices for the American process zinc to 16 @ 17c. per pound. Contract prices, however, closed nominally unchanged at 10¼ @ 10¾c. per pound, according to brand. There was a good inquiry for zinc oxide for forward shipment.

SULPHUR

While the market for sulphur was strong prices closed unchanged. Crude sulphur held around $35 @ $37 per ton, f.o.b. mines, with offerings limited. Shipments of crude brimstone to refiners are moving slowly, owing to the freight situation. Refiners are operating at capacity in order to meet the heavy demands of the rubber trade. Sulphur flour was quoted on the basis of $3.85 per cwt., in car-lots. Commercial sulphur was unchanged at $3.35 per cwt., in car-lots. Prices named were for sulphur in barrels.

Prices Current for Chemicals, Fillers, Colors, etc.

Acetone	lb.	.33	@	.34
Acids, Acetic, 28%	lb.	.05½	@	.06
Carbolic, C. P.	lb.	.40	@	.42
Cresylic, 95%	gal.	1.05	@	1.10
Muriatic, 20 deg.	lb.	.01¾	@	.02
Muriatic, 22 deg.	lb.	.02	@	.02¼
Nitric, 38 deg.	lb.	.07½	@	.07¾
Nitric, 40 deg.	lb.	.08	@	.08¼
Sulphuric, 60 deg.	lb.	.01¼	@	.01½
Tartaric, crystals	lb.	.78	@	.80
Aluminum Flake	ton	22.00	@	24.00
Aniline oil	lb.	.29	@	.30
Antimony, metal, spot	lb.	.22	@	.23
Oxide	lb.	.18	@	.20
Sulphuret, red	lb.	.25	@	.26
Sulphuret, golden	lb.	.28	@	.30
Sulphuret, crimson	lb.	.52	@	.55
Asbestos	ton	35.00	@	50.00
Asphaltum, Egyptian	lb.	.20	@	.25
Domestic	ton	18.00	@	25.00
Barium sulphate, technical	lb.	.05	@	.06
Chloride	lb.	.05	@	.05½
Barytes, prime white imported	ton	38.00	@	40.00
white, domestic	ton	28.00	@	32.00
off color, domestic	ton	18.00	@	22.00
Benzol, pure	gal.	.55	@	.60
Beta-naphthal, sublimed	lb.	.80	@	.85
unsublimed	lb.	.75	@	.80
Blacks, Drop	lb.	.07	@	.12
Ivory	lb.	.16	@	.30
Carbon gas	lb.	.27	@	.35
Lampblack R. M.	lb.	.04½	@	.06
Mineral blacks	ton	24.00	@	28.00
Blues, Prussian	lb.	.75	@	1.45
Soluble	lb.	1.45	@	1.75
Ultramarine	lb.	.25	@	.42
Browns, Umber, Turkey, burnt, powdered	lb.	.04	@	.05
American, burnt	lb.	.03	@	.03½
Cadmium sulphide, yellow	lb.	2.25	@	2.50
Carbon bisulphide, bulk	lb.	.06½	@	.07½
tetrachloride, drums	lb.	.16½	@	.17
Caustic Soda, 76@78%	lb.	.07¼	@	.07¾
Chalk, precipitated, light	lb.	.04½	@	.04¾
heavy	lb.	.03¾	@	.04¼
China clay, domestic	ton	18.00	@	22.00
imported	ton	25.00	@	35.00
Fossil flour	lb.	.06	@	.10
Gilsonite	ton	42.00	@	46.00
Glue, extra white	lb.	*.28	@	.38
medium	lb.	*.25	@	.28
low grade		*.22	@	.25
Glycerine, C. P. (drums)	lb.	.63	@	.63½
Graphite, flake (bbl.)	lb.	.25	@	.—
powdered (bbl.)	lb.	.10	@	.—
Green, chrome, R. M.	lb.	.12	@	.30
Ground glass (fine)	lb.	.02½	@	.—
Hexamethylene	lb.	.65	@	.70
Infusorial earth, powd'd.	ton	60.00	@	.—
bolted	ton	70.00	@	.—
Iron oxide, red, reduced grades	lb.	.04	@	.05
red, pure, bright.	lb.	.12	@	.14
Lead, red oxide of	lb.	.13	@	.13½
sublimed blue	lb.	.11	@	.11½
white, basic carbonate	lb.	.11½	@	.12
white, basic sulphate	lb.	.11	@	.11½
Lime flour	lb.	.01½	@	.01¾
Litharge	lb.	.12½	@	.13
English	lb.	*.13	@	.14
sublimed	lb.	.12¼	@	.12½
Lithopone, domestic	lb.	.06½	@	.07
Magnesia, carbonate	lb.	.12	@	.14
calcined, heavy	lb.	.10½	@	.14
calcined light	lb.	.65	@	.70
Magnesite, calcined, pwd.	ton	65.00	@	70.00
Mica, powdered	lb.	.03¾	@	.05
Mineral rubber (asphaltum base)	ton	40.00	@	60.00
Naphtha, motor gasolene (steel bbls.)	gal.	.24	@	—
68 @ 70 degrees (steel bbls.)	gal.	.30	@	—
70 @ 72 degrees (steel bbls.)	gal.	.31	@	—
73 @ 76 degrees (steel bbls.)	gal.	.33	@	—
machine (wood bbls.)	gal	.41	@	—
Oil corn, crude	cwt.	13.00	@	13.50
corn, refined	cwt.	14.96	@	15.06
linseed (bbl.)	gal.	1.12	@	1.15
palm, Lagos	lb.	.17	@	.17¼
pine, yellow	gal.	.54	@	.56
rapeseed, refined	gal.	1.40	@	—
rapeseed, blown	gal.	1.50	@	—
rosin, first rectified	gal.	.35	@	.36
tar (commercial)	gal.	.27	@	.28
Orange mineral, American	lb.	.15	@	.15½
imported	lb.	.16	@	.20
Petrolatum, bbls., amber	lb.	.04½	@	.04¾
pale yellow	lb.	.04¾	@	.05
Pine, tar	bbl.	14.50	@	15.50
Pitch	bbl.	4.25	@	4.75
Plaster of paris	bbl.	2.00	@	2.50
Red, Tuscan	lb.	.28	@	.31
Indian (reduced)	lb.	.06	@	.08
Standard	lb.	.08	@	.11
Rosin (common to good), @ 280 lbs.	bbl.	5.75	@	6.00
Rotten stone, powdered	lb.	.02¾	@	.04¼
Rubber substitute, Black	lb.	.11	@	.13
white	lb.	.15	@	.18
brown	lb.	.14	@	.15
Shellac, fine orange	lb.	.64	@	.65
T. N.	lb.	.58	@	.59
Bleached, commercial	lb.	.56	@	—
Bleached, bone dry	lb.	.68	@	—
Silex (silica)	ton	24.00	@	34.00
Soapstone, Powdered	ton	14.00	@	20.00
Starch, corn, powdered	lb.	.05¼	@	.05½
Sulphur, crude	ton	*45.00	@	50.00
roll, per 100 lbs. in	bbls.	3.70	@	4.15
flour		3.85	@	4.40
flowers		4.05	@	4.60
Talc, American	ton	10.00	@	15.00
French	ton	20.00	@	24.00
Toluol, pure, in drums	gal.	1.90	@	2.00
Tripolite earth	ton	60.00	@	65.00
Turpentine, pure gum—spirits	gal.	.42	@	.43
wood	gal.	.38	@	.40
Venice, artificial	gal.	.12	@	.13
Vermilion, English	lb.	1.90	@	2.10
Wax, beeswax, crude yel.	lb.	.44	@	.45
ceresin, white	lb.	.18	@	.22
carnauba, No. 3	lb.	.39	@	.40
Montan	lb.	*.35	@	.40
oxokerite, black	lb.	*.65	@	.70
oxokerite, green	lb.	*.85	@	.90
Paraffin, refined, 118/120 M.P. (bbls.)	lb.	.09½	@	.09¾
123/125 M.P.	lb.	.10	@	.10¾
128/130 M.P.	lb.	.10¼	@	.10¾
133/136 M.P.	lb.	.11¾	@	.12
Crude, 117/118 M.P.	lb.	.07½	@	.08
124/126 M.P.	lb.	.08	@	.08½
Whiting, commercial	cwt.	.95	@	1.10
Paris, white, American	cwt.	1.25	@	—
English cliffstone	cwt.	1.50	@	—
Yellow chrome	lb.	.24	@	.27
Zinc oxide, American process, horsehead brand	lb.	†.10¼	@	.10½
selected	lb.	†.10¾	@	.11
"XX red"	lb.	†.10¼	@	.10½
French process, green seal	lb.	.15½	@	.16
red seal	lb.	.15	@	.15½
white seal	lb.	.16	@	.16½
Zinc substitutes	ton	30.00	@	35.00
Zinc sulphide, pure	lb.	.07½	@	—

*Nominal. †Contract prices.

The Crude Rubber Market

NEW YORK, July 27, 1917.

While the demand for crude rubber has shown only moderate improvement, higher cables from London imparted a decidedly firmer feeling to the local market. The strength has aroused manufacturers and a better inquiry is noted, especially for the plantation grades. In view of the growing shortage in shipping facilities, freight rates have again been advanced, and on reports from London to the effect that the British Government is considering the proposition of "rationing" all shipments of rubber in the near future the market has again turned in favor of sellers.

During the last two weeks the London market has advanced fully 2d. per pound, all positions. At the close to-day first latex was cabled at 31¼d., and ribbed smoked sheets at 31½d. London and Liverpool statistics for June, the latest issued, show that the total stocks at these two ports, on the last day of the month, amounted to 14,581 tons, which compares with 8,475 tons on the corresponding date a year ago, and 8,248 tons in 1915. Of the total for this year, 13,021 tons of plantation grades were stored in London. The stocks of rubber in London have been increased materially since the first of the year.

According to private advices there has been a more liberal issue of permits to ship to Russia and therefore it is likely that the holdings will shrink. In London the future positions are commanding a premium over spot rubber.

In the absence of any important buying the market here responded slowly to the upward movement inaugurated abroad. First latex pale crepe was quoted at 67@67½c. a fortnight ago, while to-day prices ranged from 68@68½c. per pound, prompt shipment. First latex and smoked sheets, October-December shipment, closed firm at 67c. per pound. Clean brown crepe on spot was offered at 63c., with July-September at 62½c. and October-December at 61½c.

Brazilian descriptions were in better demand for the last few days. Para up-river fine on spot was quoted at 68@68½c., with nearby held at the same prices. Up-river coarse was steady at 49c. spot and 48c. for July-August shipment. Islands fine was maintained around the 62c. level, and up-river medium also closed at 62c.

Centrals were quiet and featureless. Corinto closed at 42c., spot and nearby delivery, with Esmeralda at 41½c. per pound. The prices named were more or less nominal, due to the inactive condition of the market. Mexican Guayule is still coming forward slowly, and shipments are mostly under contract, thus leaving little for distribution. The nominal quotations ranged from 37 to 40c.

Pontianak gum for August-October shipment from the East was offered at 11¾ @12c. per pound. Spot quotations held at 12¼@12½c.

	Spot.	July-Sept.	Oct.-Dec.
Para—Up-river fine	68½	68	..
Up-river medium	62½	62	..
Up-river coarse	49	48	..
Caucho ball	43½	43	..
Islands fine	62	62	..
Islands coarse	30	29½	..
Cameta	32½	32½	..
Madeira fine	70½	..	..
Ceylons-Smoked sheets, ribbed	68	67½	67
Smoker sheets, plain	67½	67	66½
First latex pale crepe	68	67½	67
Amber crepe	65½	65	63
Clean brown crepe	63	62½	61½
Centrals—Corinto, prime	42	42	..
Esmeralda, prime	41½	41½	..
Mexican scrap	41	41	..
Balata, sheets	*63	..	..
Balata, block	*56	..	..
Guayule	38	..	..
Africans—Rio Nunez, string	*67	..	..
Massai, red	*55	..	..
East Indian Pontianak	12½	11¾	..
Palembang	12¾	12	..

* Nominal

WHAT YOU HAVE BEEN LOOKING FOR

RED SULPHURET *of* ANTIMONY

"MADE IN AMERICA"

The Dealer Recommends Red Tubes—The User Prefers Them
Why Not Satisfy That Demand and make ANTIMONY RED TUBES exclusively?
They Cost No More Than Pure Gum Greys

CONSIDER THE POINT YOUR ADVERTISING MANAGER COULD MAKE

For Particulars, Red, also Golden, Apply

FRAZAR & COMPANY

ESTABLISHED 1856

50 CHURCH STREET NEW YORK

J. A. KENDALL
Second National Bldg.
AKRON, OHIO

REPRESENTED BY
FRED L. MOSES
220 Devonshire Street
BOSTON, MASSACHUSETTS

R. NORTHCOTE & CO.
Canadian Pacific Bldg.
TORONTO, ONT.

Importations of Crude Rubber into the United States in June, 1917

Figures compiled by The Rubber Association of America, Inc., 17 Battery Place, New York City (estimated net weights).

PLANTATIONS

From	Tons.
Liverpool	256
London	2,585
Singapore	2,131
Singapore via Japan	98
Colombo	304
Penang via Japan	157
Batavia	4,357
Japan, and Other Countries	913
	10,801

PARAS

From	Tons.
Manaos	243
Para	3,503
	3,746

AFRICANS

From	Tons.
Liverpool	42
London	21
Hull	46
Lisbon	213
Bordeaux	1
	323

*CENTRALS AND GUAYULE

From	Tons.
Centrals (Mexico and Central America)...	43
Guayule (Mexico)	86
	129

* Owing to the war, we are temporarily unable to furnish complete statistics for rubber arriving on boats from Central America.

MANICOBAS AND MATTO GROSSO

From	Tons.
Bahia	97

GUMS, WASTE RUBBER, ETC., IMPORTED FROM VARIOUS SOURCES

	Tons.
Scrap Rubber	154
Reclaimed Rubber	164
Jelutong	1,287
Gutta Siak	22
Gutta Percha	516
Balata	6
Miscellaneous Gums	48
	2,197

COMPARISON, 1916—1917

	June, 1916.	June, 1917.
Plantations	9,103	10,801
Paras	2,223	3,746
Africans	386	323
Manicoba and Matto Grosso	155	97
Centrals	149	43
Guayule	137	86
	12,153	15,096

Arrivals Plantation Rubber for June, 1917—Showing Ports of Origin and Destination

From	Arrived at	Tons.
Singapore	Seattle	1,414
Singapore via Japan	Seattle	98
Singapore	San Francisco	681
Singapore	Port of Cleveland	36
Penang via Japan	Seattle	157
Batavia	New York	1,123
Batavia	San Francisco	3,234
London	New York	2,585
Liverpool	New York	256
*Japan	Seattle	913
Colombo	New York	283
Colombo	Port of Cleveland	21
		10,801

* Including other countries.

ARRIVALS OF PLANTATIONS BY PORTS

	Tons.	Tons.
Atlantic Ports—		
New York	4,251	4,251
Pacific Ports—		
San Francisco	3,915	
Seattle	2,578	
		6,493
Port of Cleveland		57
Total		10,801

Scrap Rubber

NEW YORK, July 27, 1917.

The market for scrap rubber has been quiet, with a slight upward tendency in prices. The following quotations are those given by middlemen to consumers:

Domestic scrap—		
Boots and shoes, No. 1..per lb	9½@	9¾
Trimmed arctics	7½@	7⅞
Bicycle tires	5¼@	5½
Auto tires	6⅞@	7⅛
Solid tires	7 @	7½
No. 1 inner tubes	25 @	26
No. 2 inner tubes	12½@	12¾
Hose	2 @	2½
Red tubes	12½@	12¾
Black rubber	3 @	4
Foreign scrap—		
Boots and shoes, No. 1	8½@	8¾
Auto tires	6 @	6¼
White mixed	8 @	8¼
Red mixed	6⅝@	6⅞
Airbrakes	3 @	4

Among the Dealers

THE GLOBE TIRE SALES CO., a new concern, has opened a store at 1653 Broadway, Denver, Colo., and is handling Globe tires.

GEORGE S. HOWE, having secured the distributing agency for several makes of tires, has entered business for himself at 935 Woodward Avenue, Detroit, Mich. He will also handle the Howe tire and hood covers, which he has been manufacturing for the past eight years.

FORD L. MARKS will open a vulcanizing plant at Waurika, Ky.

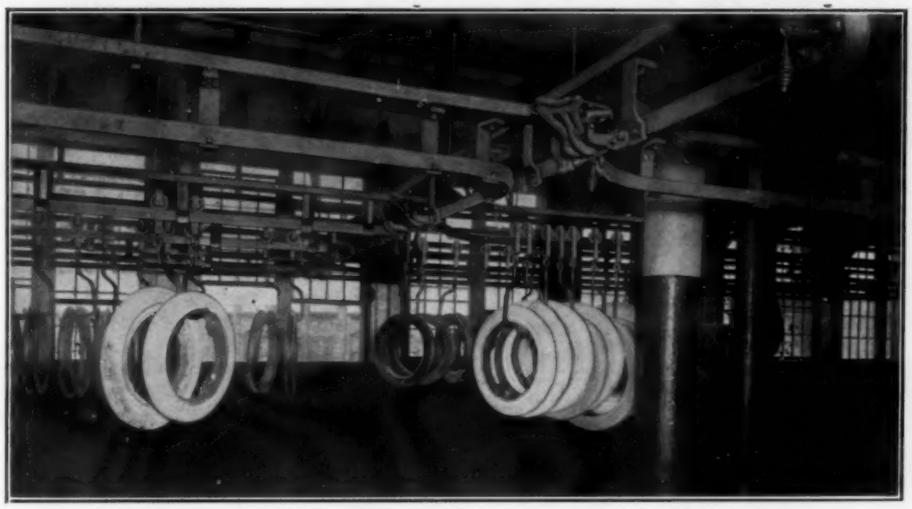
THE DOREMUS TIRE & SUPPLY STORE has been opened at 189 East Long street, Columbus, Ill., by Frank S. Doremus. Federal and Falls tires will be handled.

O. PEDERSON has opened the Westlake Tire & Repair Shop at 2020 Westlake Avenue, Seattle, Wash. Vulcanizing and retreading will be important specialties.

STUBER STONE & CO., INC., Abbott distributors, have opened a large salesroom and service station in Detroit, Mich.

GERALD KAIRNS has become office manager of the accessory store of James Hook and Herbert Miller, Kent, Ohio.

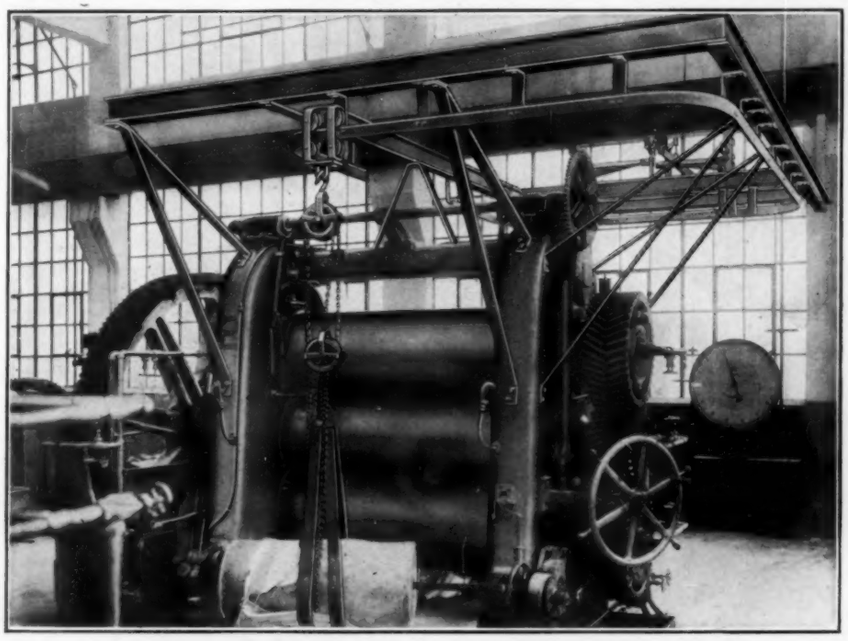
J. DUNCAN CO.



Our Equipment in Use at Fisk Rubber Co.

OVERHEAD TROLLEY SYSTEMS

For the economical handling of tires, cores, moulds and every description of rubber goods. Economizes floor-space—promotes convenience. CUTS YOUR COSTS.



Installed at Boston Woven Hose & Rubber Co.

The above illustration shows the application of our system to a Farrell Collander, which for compactness, reliability and efficiency is particularly interesting to manufacturers of rubber goods. This is only one of the many different methods we have in use for handling the large rolls of material. Inquiries are solicited for further details as to sizes and capacities.

J. DUNCAN CO., 7 FULTON PLACE, BOSTON, MASS.

Classified Buyers' Index To Rubber Factory Equipment

Below is printed an alphabetical list of the principal machinery and other equipment used in rubber factories, compiled from information supplied by the manufacturers. The key symbols placed after the items refer to the names of the manufacturers that make them, as shown in the list of Manufacturers of Rubber Factory Equipment, that is printed elsewhere on this page.

Accumulators, A11, B23, F3, T31, W31.
Autoclaves, A11, B31, D15, E11, S55.

Balances, B7, E11, S19, T27.
Bins, Stock, O3.
Blocks, Pillow, A11, F3, T43.
Blowers, Tube Splicing, G3.
Boilers, Steam, S31.
Boosters and Exhausters, A3.
Boxes, Compound, O3.
Brands, Aluminum, D19.
Brakes, T43.
Brushes, O7.
Buckets, D27.

Cages, D27.
Calenders, A11, F3, S31, T43.
Calenders, Embossing, F3, H11, T19, T43.
Cars, Shoe, O3.
Carton Filling Machines, W23.
Carton Making Machines, W23.
Castings, A11, B3, B23, B31, D27, F3, M3, T31, T43, W31.
Chemical Apparatus, B31.
Chucks, S47.
Clutches, Brake, F3, T43.
Clutches, Friction, F3.
Clutches, Magnetic, F3, T43.
Compressors, Air, S31, T31.
Condensers, D15, S55, T31.
Conveyors, D27.
Cores, Tire, A11, B3, T31.
Coupling, Power, T43.
Crackers, A11, F3, T43.
Cranes, D27.
Cutters, Baby Carriage Tire, W23.
Cutters, Band, A11, E3, H31, R7.
Cutters, Bias, W23.
Cutters, Duck Plug, W23.
Cutters, Gaskets, A11, H11, H31.
Cutters, Raw Stock, W23.
Cutters, Rubber Stock, H19, H31, R7, T11.
Cutters, Scrap, A3, T11.
Cutters, Strip, E3, F3.
Cutters, Tubing, W23.

Devulcanizers, B11, D15.
Dies, A11, D19, H11.
Die Sinking, A11, D19, H11.
Dies, Cutting, D19, H11.
Digestors, D15.
Dipping Machines, O3.
Doubling Machines, F3, T43.
Doubling Machines, Fabric, T17.
Drills, D27.
Drives, A11, D27, F3, T43.
Drives, Chain, D27, F3, T43.
Drives, Motor, A11, D27, F3, T43.
Drums, Bead, A11, T31.
Drums, Tire Machine, G3.
Drums, Tread, A11.
Dryers, A35, B31, D15, H27, S31, S55.
Dryers, Fabric, C51, D15, T19, T43.
Dryers, Rubber, D15.
Dryers, Vacuum, D15, S55.
Dynamometers, S19.

Engines, Steam, S31.
Engraving Machines, Hard Rubber, A11.
Experimental Outfits, A11, B3, D15, D19, E11, F3, T43.
Extractors, E11.

Fittings, Hydraulic, A11, B23.
Fittings, Water, A11.
Folders, Belt, F3.
Forms, Dipping, D19.

Gages, Pressure, B23, S7.
Gages, Recording, S7.
Gages, Thickness, H11.
Gears, A11, F3, M23, T43.
Governors, Pump, M15.
Grinders, A11, F3, S47, T43.
Grinders, Hard Rubber Dust, A3, A11, F3, R3, T43.

Hammers, Steam, B31.
Hangars, D27, M27.
Hoists, D27.
Holders, Form, O3.
Hooks, Tire, D27.
Hose Machines, F3, R27.
Hydraulic Machinery, A11, B23, F3, H19, T43, W31.
Hydrometers, T7, T27.

Ice Machines and Equipment, D27.
Impregnators, B31, D15, F3, S55.
Instruments, Recording, S7, S19.
Insulating Machines, R27.

Joints, Expansion, A11, B23.
Kettles, A11, B31, D7, D15, S31, S55.
Knives, H31, J7, R7, T43.
Knives, Calender, R7.
Knives, Jar Ring, R7.
Knives, Mill, R7.
Knives, Tapping, R7.

Laboratory Apparatus, D7, D15, E11, F3, R27, S15, S19, T27.
Ladders, Rolling, M27.
Lathes, Hard Rubber, A11, S47.
Lathes, Jar Ring, A11, T31, W23.
Lathes, Wrapping, A11.
Lockers, O3.
Looms, Hose, R27.

Magnets, D23.
Mandrels, A11.
Markers, Shoe, H11.
Microscopes, E11, T27.
Mills, Grinding, A3, A11, E11, F3, R3, D7, T43.
Mills, Mixing, A11, D7, F3, T43, W7.
Mills, Paint, D7, R3.
Mills, Washing, A11, F3, T43, W7.
Mixers, Solution, D7, W7.
Molds, Hose, A11.
Molds, Mechanical, A11, D19, H11, H19, M3, T15.
Molds, Sole and Heel, D19.
Molds, Sundries, D19, H11.
Molds, Syringe Bag, D19.
Molds, Tire, A11, B3, T31.
Molds, Toy, D19.
Molds, Water Bottle, D19.
Motors, D27, E11, T43.

Name Plates, H11.

Pattern Making, A11, M3, T43.
Percolators, D7, D15, E11, S55.
Plaiters, W23.
Plantation Machinery, F3, T43.
Plants, Aniline Oil, D15.
Presses, Baling, B23.
Presses, Bead, A11, B23, F3, W31.
Presses, Belting, A11, B23, F3, T43, W31.
Presses, Blocking, B23.
Presses, Filter, A3.
Presses, Forcing, A11, B23, T43, W31.
Presses, Hand, A11, B23, E11, F3, H19.
Presses, Heater, A11, B11, F3, W31.
Presses, Hydraulic, A11, B23, F3, H19, T19, T31, T43, W31.
Presses, Plate, A11, B23, F3, W31.
Presses, Sheeting, A11, B23, F3.
Presses, Shoddy, A35.
Presses, Tire Setting, A11, B23, W31.
Presses, Vulcanizing, A11, B11, B23, F3, T31, W31.
Pulverizers, A3, D7, E11, R3.
Pumps, A3, A11, E11, M27, S31, T31.
Pumps, Centrifugal, T31, W31.
Pumps, Hydraulic Pressure, A11, B23, S31, T31.
Pumps, Spray, M27.
Pumps, Vacuum, A3, B31, D15, E11, S31, S55, T31.
Racks, Drying, D7, D27.
Racks, Shoe Car, H11, O3.
Racks, Tire, D7, D27, O3.
Railways, Industrial, D27.
Reclaiming Machinery, B11, D7, F3, R27, S55, T43.
Refiners, A11, F3, T43.
Regulators, Damper, M15.
Regulators, Pressure, D3, M15, T7.
Regulators, Pump, M15.
Repair Equipment, Tire, B11.
Riveters, W31.
Rollers, Hand, B3, H11, H19.
Rollers, Strip, B3.
Rolls, A11, F3, T43.
Rolls, Chilled, A11, T43.
Rolls, Cooler, F3.
Rolls, Engraved, F3, H11.
Rolls, Mill, A11, F3, T43.
Rolls, Sand, A11, F3, T43.
Rolls, Steel, F3.
Rolls, Wood, G3.

Safety Appliances, D27, F3.
Scales, B7, D27.
Screens, D7, O3.
Screw-Downs, Calender, A11, T43.
Separators, Air, R3.
Separators, Magnetic, D23.
Separators, Water, A35.
Shafting, A11, D27, F3, T43.
Shears, Hand, J7.
Shears, Power, F3.
Shells, Belting, G3.
Shells, Calender, C55, O3
Shells, Stock, G3.
Sifters, D7.
Sifters, Brush, D7.
Slitting Machines, F3.
Skivers, J7, R7.
Solvent Recovery Apparatus, B31, D15, S55.
Spreaders, A11, F3, T43.
Sprockets, D27, M23, T43.
Stamps, Steel, D19, H11.
Stands, Tire, A11, B3, T31.
Starters, Motor, T43.
Sticks, Shoe, H11, O3.
Stitchers, B3, H11.
Stops, Safety, D3, D27, F3, T43.
Strainers, A11, R27.
Stretchers, Belt, A11, F3, T19, T43.
Stretchers, Hydraulic, A11, F3, T43.
Switches, Electrical, D27, T43.

Tables, Calender, O3.
Tables, Cooling, D27, O3.
Tables, Tire Conveying, O3.
Tanks, Acid, B11, D15, S55, T19.
Tanks, Soaking, B11, S55, T31.
Testing Machines, B11, S19.
Thermometers, E11, S7, T7, T27.
Tire Making Machines, B3, R27, T31.
Tire Tread Machines, R27.
Tire Wrapping Machines, Cloth, T15, T31, T43.
Tools, Fountain Pen, S47.
Tools, Rubber Workers', H11, H31.
Tramways, Overhead, D27, O3.
Transmissions, A11, D27, M23, T43.
Traps, Steam, D3.
Trimmers, W23.
Trolleys, D27.
Trucks, Industrial, D7, D27.
Tube Wrapping Machines, A11, T43.
Tubing Machines, A11, R27.

Valves, Float, M15.
Valves, Hydraulic, B23, D27, T31, W31.
Valves, Reducing, D3, D27, M15.
Vulcanizers, A11, B11, D15, T31, W31.

Washers, A11, D15, F3, T43.
Washers, Beater, T43.
Washers, Tub, D7, F3, T43.
Wheels, Buffing, O7.
Wheels, Roller Bearing, D27.
Wire Drawing Machines, T43.
Wiring Machine, Hose, A11.
Wrapping Machines, A11, T15, T31.

Manufacturers of Rubber Factory Equipment

THE RUBBER AGE will gladly supply information regarding the addresses and products of the following manufacturers of Rubber Factory Equipment.

The advertisements of concerns whose names appear in bold face type will be found in this issue of THE RUBBER AGE.

A 3—Abbe Engineering Co.
A 7—Adams, John J.
A 11—Adamson Machine Co.
A 15—Adamson Mfg. Co.
A 19—Air Utilities Co., Inc.
A 23—Akron Rubber Mold & Machine Co.
A 27—Allen Machinery Co.
A 31—Alvey-Ferguson Co.
A 35—American Process Co.
A 39—American Rotary Valve Co.
A 43—American Tool & Machine Co.
A 47—Arthur Vulvanizing Machine Co.

B 3—Banner Machinery Co.
B 7—Becker, Christian, Inc.
B 11—Biggs Boiler Works Co. See Advertisement on Page 379.
B 15—Birmingham Iron Foundry.
B 19—Bonnett Co.
B 23—Boomer and Boschert Press Co. See Advertisement on Page 378.
B 27—Bristol Co.
B 31—Buffalo Foundry & Machine Co.

C 3—Cameron Machine Co.
C 7—Cell Drier Machine Co.
C 11—Champion Shoe Machine Co.
C 15—Chernack Mfg. Co.
C 19—Chicago Mold & Machinery Co.
C 23—Edred W. Clark.
C 27—Colonial Sign & Insulator Co.
C 31—Continental Rubber Works.
C 35—Cox, Geo. P., Last Co.
C 39—Crane Co.
C 43—Curtis & Marble Machine Co.
C 47—Cutler-Hammer Clutch Co.
C 51—Cutter, G. A., Sales Agent.
C 55—Cylinder Mfg. Co.

D 3—Davis, G. M., Regulator Co.
D 7—Day, J. H., Co.
D 11—De Mattia Bros.
D 15—Devine, J. P., Co.
D 19—Die Sinking & Machine Co. See Advertisement on Page 377.
D 23—Dings Magnetic Separator Co.
D 27—Duncan, J., Co.
E 3—Eastman Machine Co.
E 7—Eggers, William, & Sons.
E 11—Elmer & Amend.
E 15—Esterline Co.
F 3—Farrel Foundry & Machine Co.
F 7—Ford Chain Block & Mfg. Co.
G 3—Gammeter, W. F. See Advertisement on Page 376.
G 7—Garvin Machine Co.
G 11—General Electric Co.
G 15—Goodnow, L. H., Foundry Co.
H 3—Hartford Special Machinery Co.
H 7—Haywood Tire & Equipment Co.
H 11—Hoggson & Pettis Mfg. Co. See Advertisement on Page 374.
H 15—Hollander & Johnson.
H 19—Holmes Bros.
H 23—Housatonic Machine & Tool Co.
H 27—Hunter Dry Kiln Co. See Advertisement on Page 375.
H 31—Hyde Manufacturing Co. See Advertisement on Page 375.
J 3—Jones & Kuhlke. See Advertisement on Page 376.
J 7—Judson Cutlery Co.
K 3—Knott, L. E., Apparatus Co.
K 7—Kohl Mfg. Co.
L 3—Lander Last Co.
L 7—Landis Machine Co.
L 11—Lenz & Naumann.
L 15—Link Belt Co.
L 19—Lloyd, John, Co.
L 23—Lobdell Car Wheel Co.
M 3—McFarland Foundry & Machine Co.
M 7—McGrory, Philip.
M 11—Mahlow & Wykoff.

Manufacturers of Rubber Factory Equipment—Continued

M 15—Mason Regulator Co.
M 19—Miller, Chas. E.
M 23—Morse Chain Co.
M 27—Myers, F. E., & Bro.

N 3—New England Butt Co.
N 7—Norton, M., & Co.

O 3—Ornamental Iron Works Co.
O 7—Osborn Mfg. Co.

P 3—Pierce Wrapping Machine Co.

R 3—Raymond Bros., Impact Pulverizer Co.
R 7—Richard Co., Inc., Stephen.
R 11—Riehle Bros., Testing Machine Co.
R 19—Ross, Charles, & Son Co.
R 23—Rossman, Roy G.
R 27—Royle, John, & Son.

S 3—Sargent, E. E., & Co.
S 7—Schaefer & Budenberg Mfg. Co.
S 11—Schuchardt & Schutte.
S 15—Scientific Materials Co.
S 19—Scott, Henry L., & Co.
S 23—Sessions, J. H., & Sons.
S 27—Shaler, G. A.
S 31—Shartle Machine Co.
S 35—Shoe Hardware Co.
S 39—Singer Sewing Machine Co.
S 43—Smith-Backmann Machine Co.
S 47—Smith Co., James M.
S 51—Southwark Foundry & Machine Co.
S 55—Stokes, F. J., Machine Co.
S 59—Summit China Co.

T 3—Tagliabue Mfg. Co.
T 7—Taylor Instrument Co.
T 11—Taylor, Stiles & Co.
T 15—Terkelsen & Wennberg.
T 19—Textile Finishing Machine Co. See Advertisement on Page 377.
T 23—Textile Machine Co.
T 27—Thomas Co., Arthur H.
T 31—Thropp's, John E., Sons Co.
T 35—Trefethen, F. L.
T 39—Troemner, Henry.
T 43—Turner, Vaughn & Taylor Co. See Advertisement on Page 380.

U 3—Utility Mfg. Co.

V 3—Venn, Frank.

W 7—Werner & Pfleider Co.
W 11—Westinghouse Electric Mfg. Co.
W 15—Williams Foundry & Machine Co.
W 19—Williams Patent Crusher & Pulverizer Co.
W 23—Wills, Arthur J.
W 27—Wolff Co.
W 31—Wood, R. D., & Co.
W 35—Work, Joseph W.

RUBRAX

MANUFACTURERS
of
Elastic
Hydro-Carbons

THE U.S. ASPHALT REFINING CO. RUBRAX QUALITY FIRST TRADE MARK

Plants and Branches at
BALTIMORE, MARYLAND
CARTERET, NEW JERSEY
PHILADELPHIA, PENNSYLVANIA

THE INTEROCEAN OIL COMPANY
90 West Street: NEW YORK

H. MUEHLSTEIN & CO.

BUY and SELL

Any Grade **SCRAP RUBBER** Any Quantity

NEW YORK
3rd Ave. & Harlem River

CHICAGO
114 W. Van Buren Street

AKRON
311 Second Nat'l Bldg.

BOSTON
176 Federal Street

MONTREAL
32 Colborne Street

CABLE ADDRESS
"STEINMUL" NEW YORK

LONDON, ENGLAND
124 Minorles

BOSTON YARN COMPANY

60 Federal Street Boston, Massachusetts

FABRICS

Auto Fabrics to Specification

Sea Islands, Egyptians and Peelers

OBALSKI & SWEENEY, Inc.

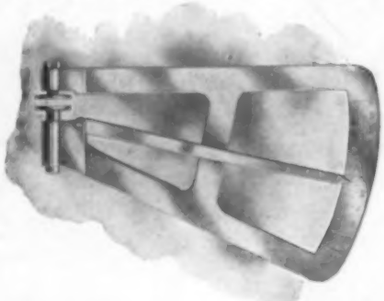
CRUDE RUBBER

AND KINDRED PRODUCTS

Importers and Traders Building 59-61 Pearl Street

NEW YORK

MEASURING GAUGES



FOR MEASURING SHEET RUBBER

HOME OF

BALL BEARING STITCHERS

AND ROLLERS FOR TIRE & SHOE MANUFACTURING

TOOLS OF QUALITY

(ESTABLISHED IN 1849) THE HOGGSON & PETTIS MFG. CO. NEW HAVEN, CONN., U. S. A.

RAW PRODUCTS CO.

Crude Rubber

Washed and Refined Rubber

J. A. KENDALL
Akron, Ohio

78-80 WALL ST.
NEW YORK

J. H. LANE CO.

334 FOURTH AVE.

NEW YORK

Motor Tire Ducks Hose and Belting Ducks Yarns

CHICAGO BOSTON

To American Buyers and Manufacturers

We buy plantation rubber both at private sales and Auction Sales in Singapore and Penang, for you exclusively. We represent no plantations as sellers of their product. Our organization is experienced and complete. We can take on a few additional American customers and buy for them exclusively. Investigation by correspondence is solicited.

G. AURELY & CO.
MAIN OFFICE, PENANG, S. S.

EXTENSION BLADES AND HANDLES
Mention Extension Blades and Handles to any experienced rubber mill worker and his mind just naturally turns to the I. P. HYDE Brand.—Why? Because he has come to know that they are right for his use, made right for rubber mill work and work right. Let us send you Catalog-R, shows 80 different styles of rubber cutting knives.
HYDE MFG. CO.
Southbridge Mass.
I.P.HYDE

YOU CAN

—Dry all kinds of crude rubber in the same kiln at the same time.
—Process it while drying it.
—Prevent oxidation and injury from improper drying.
—Increase its tensile strength
—Reduce the time of breaking down 25 to 50%.
—Dry compounds in their original packages along with the rubber.

With the

Hunter Patent Process

Full Particulars on Request
Address
Hunter Dry Kiln Company, Indianapolis, Ind.
Laboratory and Offices, 26th St. and Cornell Ave.

TIRE FABRICS

Made of Yarns of Our Own Spinning, and with Machinery of Latest and Most Approved Type

The Fabric for Endurance

MANHASSET MFG. COMPANY, Providence, R. I.

TIRE FABRICS

OF EVERY DESCRIPTION

TAYLOR, ARMITAGE & CO., Inc.

Equitable Building, 120 Broadway, New York

SEA ISLANDS EGYPTIANS PEELERS

FABRICS TO SPECIFICATION

PASSAIC COTTON MILLS AMERICAN TIRE FABRIC CO.

We Are Now Supplying The World

WITH

UNIVERSAL STEEL CALENDER STOCK SHELLS

in 4", 5", 6", 8" and 10" diameters, any lengths from 4" to 100", any size square mandrel holes.

Materials always on hand.
Try us on that rush order.

W. F. GAMMETER Cadiz, Ohio

ALBERT V. W. TALLMAN

CRUDE RUBBER AND GUMS

54 STONE STREET

NEW YORK CITY

SULPHUR

BROOKLYN SULPHUR WORKS

FLOUR SULPHUR

Extra Fine and Free from Grit.
"VELVET SULPHUR" for

RUBBER Manufacturers

BATTELLE & RENWICK

80 Maiden Lane New York, N. Y.

JONES & KUHLKE

MANUFACTURERS OF

FOR GENERAL RUBBER WORK **MOLDS** FOR AUTO-MOBILE TIRES

CORES AND SPECIAL MACHINERY

48-58 West Exchange Akron, Ohio

MARLBORO COTTON MILLS

McColl, S. C.

Tire Fabrics and Yarns

SALES MADE DIRECT

CHAS. E. WOOD

Importers and Traders Building — 24-26 Stone St., New York

BROKERS IN

Crude Rubber, Balata, Gutta Percha and Kindred Products

Prompt attention and efficient service to buyer and seller alike

Telephone Broad 1485 — Akron Office: 328 Hamilton Bldg., Phone 7007 Main

MAGNESIA

Double Calcined Heavy
and
Carbonate of Magnesia

General Magnesite & Magnesia Co.
Montgomery Avenue and 29th Street
Philadelphia

THE DIE SINKING & MACHINE CO.

MOLD MAKERS AND ENGRAVERS

MANUFACTURERS OF

Molds for Syringe Bags Hot Water Bottles and Mechanical Goods : :

Hose Brands and Belting Dies. Steel Stamps. Aluminum Brands. Serial Numbers. Cutting Dies. Tubing Dies. Sole and Heel Molds.

Catalogue sent on request — AKRON, OHIO

EMBOSSING CALENDERS

For Artificial Leather, Oil Cloth,
Carriage and Automobile Covers

DRYING MACHINES

with Copper or tinned iron Cylinders for Cotton Ducks, Drills and Sheetings

The Textile-Finishing Machinery Co.
Office, No. 83 Exchange Place
PROVIDENCE, R. I.

ANILINE OIL

CARBON BISULPHIDE — K&B — CARBON TETRA-CHLORIDE

SULPHUR CHLORIDE

KATZENBACH & BULLOCK COMPANY, Inc.
NEW YORK TRENTON CHICAGO SAN FRANCISCO

RUBBER AGE

Prints the most complete record of news and tells all the Technical Progress of the Rubber Industry.

24 issues a year for $1.00

WANTED: For immediate installation, second-hand mixing mills 18 x 50 or larger. State price, size, make and general condition. "Anderson," care RUBBER AGE, 120 W. 32nd St., New York.

AN EASTERN TIRE & RUBBER COMPANY HAS POSITION open for thoroughly experienced superintendent. Applicant must be one used to handling employes and getting highest efficiency. A good salary and future for party able to qualify, and in applying, fullest details must be given. Good living conditions and labor market where plant is located. Applicants must have had thorough training in modern methods of high grade tire company or no attention will be paid to letter. Address Efficiency, care of Rubber Age.

The LOEWENTHAL COMPANY

Most Efficient Service in
Buying and Selling

SCRAP RUBBER

BROOKLYN
23 HEYWARD ST.

AKRON
Delaware Bldg.

CHICAGO
947 W. 20th ST.

TYSON BROS., INC.

CARTERET, N. J.

MANUFACTURERS

The best grades of Rubber Substitutes and Chemicals for all branches of the Rubber Trade

Western Representative
J. A. KENDALL
524 Second National Bldg., Akron, Ohio

STOCK CARRIED IN AKRON

BRANDER & CURRY

INCORPORATED

FORTY-SECOND STREET BUILDING
NEW YORK, U. S. A.

AGENTS FITCHBURG DUCK MILLS

SEA ISLAND, EGYPTIAN AND PEELER

TIRE FABRICS

CHAFING STRIPS AND LENO BREAKERS

CORD YARNS AND CORD FABRICS, SHEETINGS AND DRILLS

FOR AUTOMOBILE AND RUBBER TRADES A SPECIALTY

20" x 20"

HYDRAULIC
STEAM PLATE
PRESS
FOR
Mechanical Goods

Notice air-cooled ram. Long distance between hot steam plate and cylinder packing. Broad foundation, etc. Send for catalogue.

BOOMER & BOSCHERT PRESS CO.

420 West Water Street
SYRACUSE, N. Y.

ANTIMONY SULPHURET

Every Manufacturer coming to us for SULPHURET has found one of our grades suitable for his product

THE HARSHAW FULLER & GOODWIN CO.
Cleveland

Antimony Works at Elyria, Ohio

WILLIAM L. LYALL, President and Treasurer
THOMAS M. GARDNER, Secretary

HENRY V. R. SCHEEL, Assistant Treasurer
T. J. KELLY, Superintendent

BRIGHTON MILLS

PASSAIC, NEW JERSEY

Tire Fabrics of Sea Island, Egyptian and Peeler Cottons

Special Constructions for Special Purposes Where Quality and Service are Foremost Considerations

ALL GOODS SOLD DIRECT

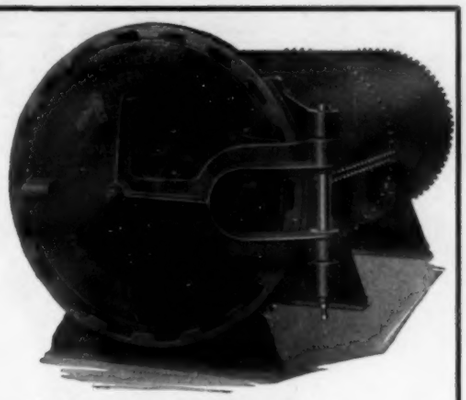
MAIN OFFICE, PASSAIC, New Jersey
New York Office, 257 Fourth Ave.

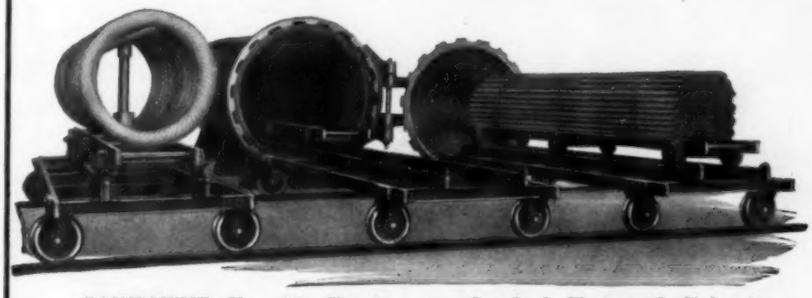
SAFETY *and* EFFICIENCY

Combined by Using the

SIMPLEX BOLTLESS VULCANIZER DOOR

On Horizontal and Vertical **VULCANIZERS**





EQUIPMENT No. 800—Showing our Standard Horizontal Vulcanizer, "Simplex Equipped," with Inside Track and Car, Outside Transfer Trucks and Special Cars for Handling Inner Tubes and Wrapped Tread Casings.

EXCLUSIVE FEATURES OF THE "SIMPLEX" DOOR

ENTIRELY SELF CONTAINED
Door operates on its own hinges.

EASE OF OPERATION
Door turns only 8 inches to open and close.

SAFETY INSURED
The safety and tightness of door is not subject to manual operation, as there is not a bolt or nut to tighten. Heavy cast steel lugs automatically support door against pressure.

EFFICIENCY
Can be opened and closed in less than 30 seconds.

THE BIGGS BOILER WORKS CO.

Kent St. and B. & O. R. R. AKRON, OHIO

Rubber Engineering Service

Tires scientifically designed. Heel and sole departments planned. Complete factories laid out. Special molds and machines designed. Experimental work.

The General Engineering Co.
Second National Building, Akron, Ohio

The Carter Bell M'f'g *Co.*

Highest Grade
RUBBER SUBSTITUTES
White, Brown & Black

150 Nassau Street New York

T. B. LIEBSTEIN

Buyer of Rubber Machinery of every description, cured and uncured rubber, discarded compound stock, fabric scrap, seconds, chemicals, or any other refuse scrap.

72 Chestnut St., Newark, N. J.

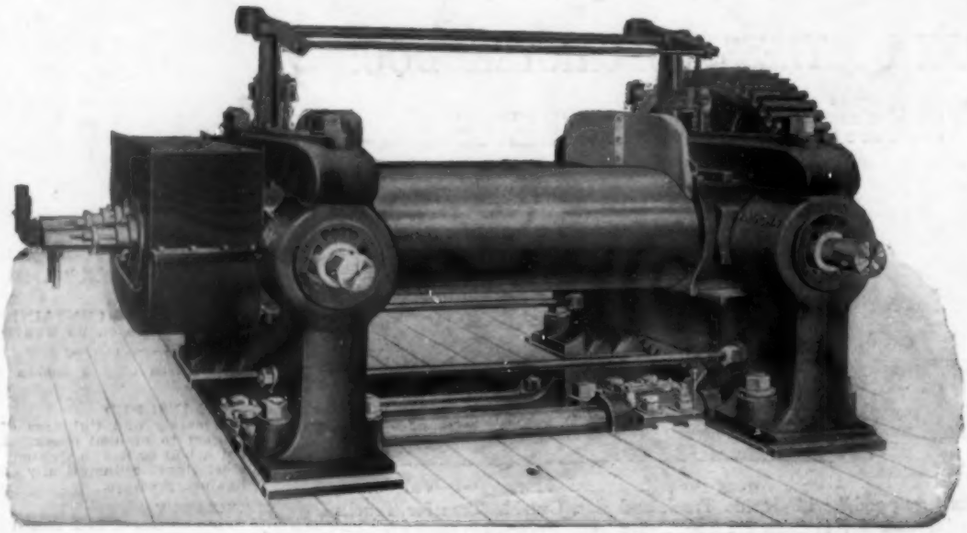
ERNEST JACOBY

CRUDE RUBBER
RUBBER SUBSTITUTES

CABLE ADDRESS
JACOBITE BOSTON

BOSTON MASS

THE WILLIAMS PRINTING COMPANY, NEW YORK



VAUGHN MACHINERY

Located at the very heart of the rubber industry, our Engineers are in constant touch with the world's largest producers of rubber goods of every description, which gives them first hand knowledge of the requirements of present day practice.

Safe--Economical--Efficient

THE TURNER, VAUGHN & TAYLOR CO.

Cuyahoga Falls, Ohio